SEPTEMBER 16, 1996 VOLUME 18, ISSUE 38 Founded in 1978

INFOWORLD

The Voice of Client/Server in the Enterprise



Caught in the Act? *The Telecommunications Act promises competition but could mean more confusion.* 69

Cable-ready: *How HBO added an intranet to help make complex querying as easy as changing channels.* 78

Box office hits

BrioQuery 3.0
Java warehouse query tool

HBO InfoNet
Netscape-based intranet

REVIEW: LET THE BUYER BE INTRANETWARE

Can **Novell's new all-in-one intranet solution** make the most of the NetWare name to help Big Red get a foothold in a burgeoning business? **Using NetWare 4.11 and NDS-enhanced security** as its basis, the company hopes this bundle will **give Unix and NT Server some real competition.**

Just add water
Key IntranetWare ingredients
- NetWare 4.11
- Web Server 2.5
- IPX/SPX-to-TCP/IP gateway
- NetWare Link State Protocol
- Netscape Navigator

We examine a beta to see if this combination will mean a net gain for Novell. *See page 117.*

Old guard makes way to Web

Novell gets it together

By Paul Krill

NETWORK +INTEROP

▷ For more on Novell's plans, see page 8.

CONTINUING ITS EFFORTS to reposition itself as a cross-platform intranet player, Novell Inc. is accelerating support for Internet protocols in its core NetWare product and introducing a scheme for NetWare to better interoperate with Windows NT.

Novell will unveil at NetWorld+Interop this week in Atlanta its IntranetWare package with FTP (File Trans-

▷ NOVELL *page 24*

3Com browses its own

By Stephen Lawson

NETWORK +INTEROP

NETWORK MANAGEMENT applications that exploit the ease and simplicity of a Web-browser interface will make a splash at NetWorld+Interop this week in Atlanta when 3Com Corp. shows its Transcend software, which uses Java to manage network hardware.

3Com will use Java to enable graphical monitoring, reporting, and configuration of network devices. The rollout will begin next month with full Web-based

▷ 3COM *page 24*

Java to get new jolt

Object signing extends applet reach

By Jim Balderston

NETSCAPE COMMUNICATIONS Corp. will announce next month an enhancement to Java, called the object signing model, that will allow Java objects access to resources on users' computers that were previously inaccessible.

Java applets run in a secure mode, known as the sandbox, that isolates them from computer resources such as the hard drive.

"The Netscape client will present the user with options on what resources the object will be allowed to use," said Eric Greenberg, group security product manager at Mountain View, Calif.-based Netscape. "We broke a wall in the side of the sandbox."

The Java object signing model

▷ NETSCAPE *page 24*



▸ *continued in* RESULTS AT A GLANCE, *page 85*

Hand-held devices

Microsoft's Pegasus plans take wing

By Carolyn A. April

MICROSOFT CORP. this week will take the wraps off its much-anticipated Windows CE operating system for hand-held computers, code-named Pegasus, and will articulate a vision for the platform that extends far beyond personal digital assistants (PDAs).

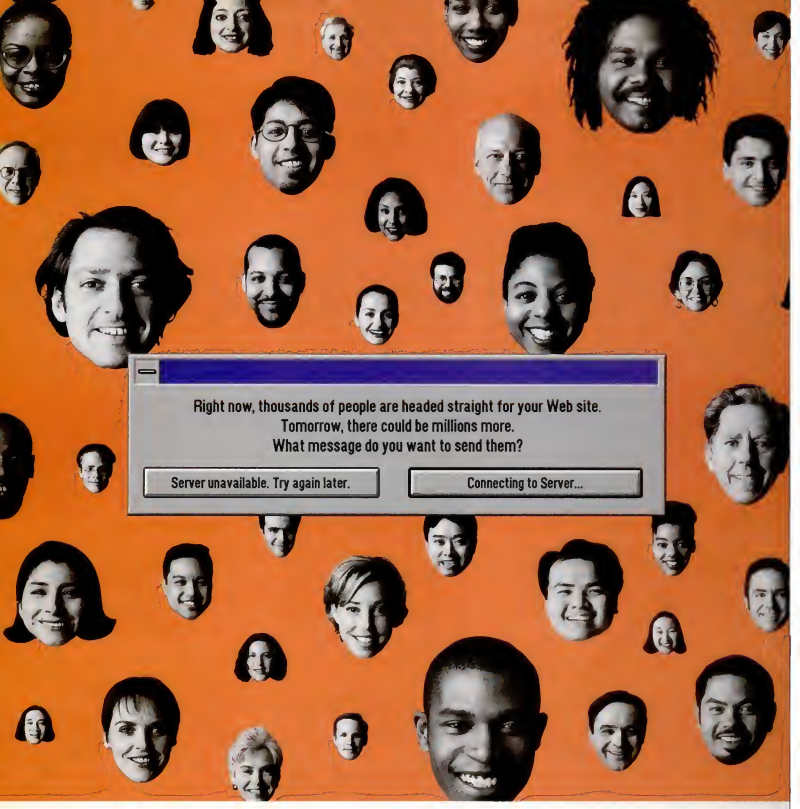
Although the first generation of products based on Windows CE will be palmtop computers, Microsoft officials said the small-footprint OS will eventually sit on a range of devices, including wallet PCs, wireless information devices, cellular smart phones, Internet televisions, set-top boxes, and Web phones.

"We are targeting this for a broad range of devices, many of which are typically outside the realm of the PC," said Jon Magill, director of marketing for the consumer appliance group at Microsoft, in Redmond, Wash.

Industry analysts said the new OS

▷ PALMTOPS *page 24*

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Office 97 anti-piracy schemes

Users reject Microsoft licensing tactic

By Ed Scannell and Chris Jones

LOOKING TO CUT down on the piracy of its applications, Microsoft Corp. is testing various licensing schemes with selected beta testers of Office 97, but one recent proposal set off fireworks among some IS managers and forced Microsoft to back down.

The proposed plan would have allowed only three installations of the package per license, requiring that administrators first insert a licensing diskette into the client system, which then permits users to install the software on that system and just two others.

Two corporate users who heard the proposal said the plan is not practical for large accounts that need to install hundreds or thousands of copies of Office. They believe the current method of installing the product once on a server and distributing it to the appropriate clients is more efficient.

"What we do [now] is buy one copy and put it up on a server and then cut purchase orders as we distribute it. I can't see this [three-installation license] working," said a user briefed by Microsoft.

"With the license diskette, you install it three times, go back to the closet and get another box, get the new license and install it three more times. This would really impact corporate accounts," said another IS professional briefed by Microsoft.

"This is something we were just testing as part of the [Office 97] technical beta," said Michael Graff, group product manager for Microsoft's Office line. "Right now we are looking into lots of different ways to discourage illegal approaches, but for now we will probably stay with the same [licensing] plan we have for Office 95."

With the diskette versions of Office 95, Microsoft users "compliance checking" to verify how many machines the software is installed on. But with CD-ROMs, which do not have any write capability, the company cannot accurately track copies of the program.

"This is why we were testing the notion of having a floppy [licensing diskette] that came with the CD," Graff said.

Graff declined to name some of the other licensing schemes Microsoft is looking into, but he said the company will continue to explore options because software piracy is a costly issue that eventually needs to be addressed.

"We have about 90 percent of the suites business, so piracy has cost us a huge amount of money," Graff said.

The Software Publishers Association estimates that software piracy around the world cost vendors about $8 billion in 1994. Although officials there believe corporate piracy has declined somewhat in the past year or two, overall piracy has been increasing.

What has encouraged piracy in recent years, in the estimation of some industry observers, is that more and more software makers are putting their products on CD-ROMs.

"The thing people love about CDs is they make software so easy to install, but that's exactly the problem when you are dealing with piracy," Graff said.

A couple of years ago Microsoft officials discussed a server-based approach to licensing client software using Window NT, but it has not raised that prospect recently. Some users believe the company has been quiet because the approach was not workable.

AT DEADLINE

ACTIVEX GOING TO IETF?

Microsoft Corp. will hold a meeting Oct. 1 regarding its ActiveX standardization process. Microsoft will let ActiveX developers choose how the company's ActiveX source code will be licensed, according to sources familiar with the plan. The meeting will be moderated by the Burton Group. Microsoft will also discuss which standards-making body will oversee the establishment of an open standard, sources said. Lead contenders are the Internet Engineering Task Force (IETF) and the Object Management Group.

MOTOROLA CLONES POWER MAC

Motorola will introduce this week the first of its Power Mac clones and a revamped line of Windows NT-based servers. The clone systems should include the latest Macintosh technology, including PowerPC 604e and 603e processors running at either 160 MHz or 200 MHz. Pricing will range from $2,000 to $4,000, including monitor, keyboard, 16MB to 32MB of RAM, at least 1GB of hard drive space, and a CD-ROM drive. Motorola is also expected to introduce a comprehensive strategy that offers users a complete networked solution based on Macintosh clients and NT servers.

APPLE TO SHOW DESKTOP/INTERNET MAP

At NetWorld+Interop in Atlanta this week, Apple Computer Inc. will demonstrate a final version of its Meta Content Format (MCF) technology designed to provide a graphics-based map of Web sites and the desktop. Apple's HotSauce application combines MCF with ProjectX, a browser and desktop-based technology that enables users to navigate multiple layers of files at Web sites or the desktop through a single screen, Apple officials said. Beta versions of the ProjectX plug-ins are available at Apple's Web site.

SYBASE TO BUILD CENTRAL WAREHOUSE

Sybase Inc. last week announced at the Commercial Parallel Processing Conference in Chicago a partnership with IBM's RS/6000 Division to build and distribute a centralized data warehouse, dubbed the Sybase Data Mall Initiative. Sybase will unveil the Data Mall Architecture, which is a shared-nothing, parallel-processing-based database combining very large database data warehousing with multiple, interactive data marts managed with IBM's SP server. The Sybase MPP 11.0 is available now for the IBM SP platform.

BRIEFLY NOTED: ▶ COMPUTER ASSOCIATES INTERNATIONAL INC., at NetWorld+Interop in Atlanta this week, will announce the immediate availability of Desktop Management Interface software in Unicenter 1.5. Within six months, CA's Unicenter will also support the Web-based Hypermedia Management Schema, officials said. ▶ NETWORK APPLIANCE CORP. and ALTEON NETWORKS INC. will demonstrate at NetWorld+Interop a Gigabit Ethernet link between a data access server and client workstations. ▶ GENERAL MAGIC INC. is shipping an object-based framework for developing Internet/intranet communications-based applications for hand-held devices. The Magic Internet Kit supports TCP/IP, Point to Point Protocol, and Ethernet and is available at General Magic's Web site or as part of MetroWerks Corp.'s CodeWarrior 10 release. ▶ BARKING DOG SOFTWARE CO. is shipping a library of Virtual Reality Modeling Language 3-D objects for PCs and Macintoshes. The $149 developer's kit is targeted at Web page designers. ▶ THE ONLINE ANALYTICAL PROCESSING (OLAP) COUNCIL will release this week a multivendor interface specification API for accessing multidimensional views of data from OLAP sources. The API is available on the OLAP Council's Web site at http://www.olapcouncil.org.

INFO WORLD ONLINE
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FROM THE NEWS DESK · MICHAEL VIZARD

It takes an e-village to raise a network

This week marks not only the opening of the NetWorld+Interop show in Atlanta but also the Telecommunications Association conference in San Diego. At first glance, it would appear that scheduling both of these events during the same week is a major blunder.

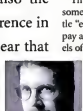
But upon further review, it may actually make sense to have these events at the opposite ends of the country in the same week — given the current state of the industry. After all, although we may spend a lot of time discussing the implications of these converging disciplines, the reality is these two cultures are still worlds apart.

Much of that separation is derived from the historical distrust IS managers have for phone companies that charge tariffs for every little packet that crosses their networks. When you're dealing with billions of bytes of data, tariffs give telephone companies a license to print money.

To get around this issue, IS managers prefer to lease phone lines to run their own private networks. Of course, with the rise of the Internet, a lot of companies have discovered that sending data over public lines is much cheaper. The trouble is that so has everyone else, and Internet demand is now coming perilously close to overwhelming capacity.

Although corporate intranets give companies the protection from the rabble on the rest of the Internet, corporations still want to have an Internet presence to stimulate electronic commerce.

This means trusting telcos or some other alternative to create little "electronic villages," where we pay a premium for guaranteed levels of service. But the pricing models that will be used in these villages are pretty much undecided. If the telcos charge tariffs, enthusiasm is likely to be limited. But when you've been living on one form of largesse for a long time, it's hard to deal with change.



In the end, it'll probably take another act of Congress to sort this out, perhaps even by eliminating the tariff model altogether. But in the meantime, the telcos need to earn the trust of IS managers. Can they? Write me at michael_vizard @infoworld.com.

IDG INTERNATIONAL DATA GROUP

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THIS ISSUE

INFOWORLD ELECTRIC

Stand up and be heard. Join the following discussions on InfoWorld Electric's forums:

■ **Back to Win95 backup:** Ed Foster's Gripe Vine forum re-explores a problem that still seems to be causing some network managers fits — how do you back up a bootable version of Windows 95?

■ **Caught in a lie:** Microsoft lied about the difference between its NT 4.0 Workstation and Server. Nick Petreley thinks it'll pay for this in credibility. What about you?

Voice your Opinion. Go to http://www.infoworld.com/pageone/forums/forums.htm.

HBO's intranet helps bring the action to you, *page 78*



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8 Novell's GroupWise 5.0 library reaches out to intranets and the Internet.

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33 HP weighs in to the notebook battle with a 3.75-pound OmniBook.

36 Cirrus' chips will increase read and write performance speed on CD-R/E drives.

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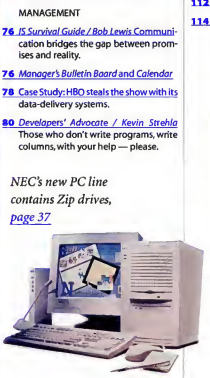
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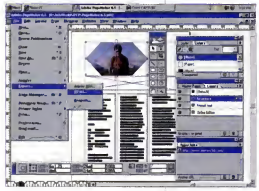
Backup solutions

- Arcserve for Windows NT 6.0
- Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition



■ *Balancing day-to-day operations and long-term projects is a tall order,* *page 76*

PageMaker 6.5 has expanded Internet functions, *page 124*





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Microsoft streams video to the office

■ NetShow controls also support audio

By Tom Quinlan

NETWORK +INTEROP MICROSOFT Corp. is finally targeting multimedia technology toward corporate users with the beta version launch of its NetShow streaming and multicast audio/video technology this week.

Together with its NetMeeting video teleconferencing solution, introduced last month, NetShow 1.0 will give Microsoft the killer application it needs to establish multimedia as a business tool, according to Jim Durkin, manager for Microsoft's Network Multimedia Product Unit.

NetShow 1.0 is a collection of ActiveX-based enhancements to Windows NT Server that will enable corporate customers to broadcast audio and video to multiple users, using either live data or on-demand stored files, Durkin said.

Broken up into two components initially, NetShow On-Demand and NetShow Live together consist of three ActiveX controls and an ActiveX Streaming File Toolkit.

Streaming video lets users play back audio and video files directly from the network or the Web; multicast technology pares down demands on network bandwidth by sending one packet of information across the network that's then duplicated at the local server level and sent on to individual users.

Developed under the code name Cougar, NetShow supports a number of transmission protocols and file formats, including cable modems and T1; and WAV, JPEG, and GIF, Durkin said.

The product will be accessible by Windows 95 and Windows NT clients, with support for Windows 3.x and Mac users coming later, Durkin added.

Both Netscape Communications Corp. and Apple Computer Inc. have announced their intentions to develop true streaming video technology for the Internet, but no delivery dates have been given.

"We tested a lot of different products," said Kevin Hamilton, online information manager for the Alameda Newspaper Group, in Alameda, Calif. Current products "didn't cut it for us. We needed a streaming media server that was reliable, and NetShows fit the bill."

Telcos make waves in network management

By Tom Quinlan

AS TELECOMMUNICATIONS giant MCI Communications Corp. reveals plans to manage corporate LANs and Compaq Computer Corp. focuses its energies on integrating Windows NT in the enterprise, a sea change is under way in network management and support.

"The big winners here are Microsoft [Corp.] and Compaq," said John Dunkle, president of Workgroup Strategic Services Inc., in Portsmouth, N.H. "With the backing of a major telecommunications company, Microsoft gets credibility as an enterprise offering, and Compaq is seen as more of a PC manufacturer and more of a solutions provider."

MCI's network parts

- Cisco routers
- Compaq servers, PCs, and Insight Manager
- Intel LANDesk
- Microsoft Office and Windows NT

Last week MCI subsidiary MCI Systemhouse — aka SHI, Systemhouse — launched networkMCI Enterprise Management Service and promised to reduce support costs by as much as 75 percent.

MCI will charge an annual fee of $2,700 per user — much lower than fees today, which range from $6,000 to $12,000, according to company officials.

In return, MCI will buy, configure, and install servers, routers, and software while providing round-the-clock support, training, help desk, and remote diagnostic support.

The service will rely exclusively on products from Compaq, Intel Corp., Microsoft, and Cisco Systems Inc., with MCI supplying the LAN infrastructure.

Departmental or enterprise servers and those applications along with desktop PCs will not be included in the basic price.

As part of the service, however, NetWare users planning to make the move to NT — considered a prime target market for the service — will get help in porting their NetWare Loadable Modules to NT, MCI officials said.

The second phase of MCI's program, which is expected to add support for Microsoft's BackOffice network application suite and possibly departmental-level Alpha-based servers from Digital Equipment Corp., is expected in early 1997.

Eventually, MCI will offer to move the enterprise infrastructure off-site and manage and maintain a data warehouse for customers.

Compaq this week will refocus its service and support efforts toward integrating a variety of hardware and software services for enterprise users not covered by the MCI agreement, sources said, with a strong focus on helping customers build corporatewide NT-based networks.

According to sources, those repackaged services will be announced this week, and Compaq will rely primarily on MCI's service to provide basic LAN support and management services.

Besides cost, MCI is focusing on simplicity and fast response time to appeal to customers.

MCI will answer any help desk call within 30 seconds, and, if the problem can't be solved over the phone, the company will dispatch a service technician to the site within 15 minutes, said Scott Ross, president and chief operating officer of MCI Systemhouse.

MCI is promising such dramatic savings because the company has the capability to design and implement a network infrastructure based on a minimum number of systems; the networks will all be based on servers from Compaq, routers from Cisco, operating systems from Microsoft, and management software from Intel.

"Companies have found themselves using networks that have been cobbled together," Ross said.

Microsoft SQL Server

Data warehousing on NT picks up speed

By Mark Leon and Martin LaMonica

MICROSOFT CORP.'S SQL Server database on Windows NT will have a high profile at the DCI data warehousing conference in Phoenix this week when Microsoft and IBM announce plans to make NT a more viable data mart platform.

Microsoft will launch a data warehousing initiative that includes enhancements to SQL Server 7.0, due in the second half of next year, and a series of meta data standards endorsed by major data warehousing vendors, including SAP America Inc., Baan Co., Informatica Corp., Praxis International Inc., and Platinum Technology Inc., according to sources familiar with the plan.

SQL Server 7 will gain a series of APIs, presented as ActiveX interfaces, that will allow third-party vendors and users to take operational data and transform it to a decision-support format, sources said.

Microsoft is also expected to announce a new meta data standard on Windows NT that will let third parties, such as query tool vendors, integrate their wares with SQL Server databases through ActiveX without having to understand the underlying data format. Microsoft's Exchange messaging platform will let administrators better manage data warehouses, sources said.

Meanwhile, IBM will unveil features of Visual Warehouse 2.0, a tool for building data marts, or small data warehouses, including an NT engine, ODBC support, and a more scalable architecture, sources said.

Although NT will be in the spotlight, analysts said the OS is still appropriate for small data marts.

"Certainly you can put data marts on NT," said Herb Edelstein, president of Two Crows Corp., a consulting agency in Potomac, Md. "But given the limitations of NT no one is going to put a terabyte warehouse on it."

Other significant announcements will be made at the conference.

■ Informix Software Inc. will introduce a new version of its MetaCube online analytical processing (OLAP) engine. Slated to ship by the end of the year and priced between $500 and $1,000 per user, MetaCube 3.0 will be more closely integrated with the Informix Online Dynamic relational database server than previous versions, officials said.

■ Praxis will show a version of OmniReplicator that adds bidirectional replication to Microsoft SQL Server. Praxis will also introduce OmniDirector, which lets users centrally manage replication and data transfer policies across a wide range of heterogeneous databases.

■ Planning Sciences Inc. will demonstrate the Gentia Web Server, a Web-enabled version of its Gentia OLAP software that will ship in the first quarter of next year.

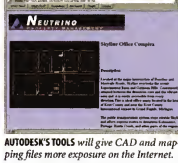
■ Andyne Computing Ltd. will demonstrate Version 4.1 of its managed query environment tool, GQL, which can handle multiple queries and publish reports in HTML format. It will ship in November.

■ Sybase Inc. will announce its IQ Interactive data warehousing server on IBM's RS/6000 hardware.

Autodesk unveils four Internet tools

By Chris Jones

FOLLOWING UP on its April announcement of a new Drawing Web Format (DWF), Autodesk Inc. this week will announce four Internet tools that use the new format for publishing CAD files, online maps, and data over the Internet.



AUTODESK'S TOOLS *will give CAD and mapping files more exposure on the Internet.*

This first wave of Internet products, made up of the AutoCAD R13 Internet Publishing Kit, MapGuide, PartSpec Online, and WorkCenter for the Web will start rolling out in October and have options for Web-based application development and the creation of collaborative engineering Web sites.

The Internet Publishing Kit contains a collection of Web page templates as well as Netscape Communication Corp.'s Navigator Gold 3.0, a Web page authoring tool, and Whip, a plug-in for Navigator that lets users zoom in on DWF files on Web pages. The tools will let users drag and drop AutoCAD files from a browser into the AutoCAD environment.

MapGuide is a suite of geographic information system (GIS) mapping tools with a Netscape viewer, an authoring environment, and a server to manage GIS maps and data online for real-time viewing.

WorkCenter for the Web creates a vault of CAD information on a server for users to view, search, and retrieve. PartSpec Online is a collection of about 400,000 CAD parts that users can access in DWF.



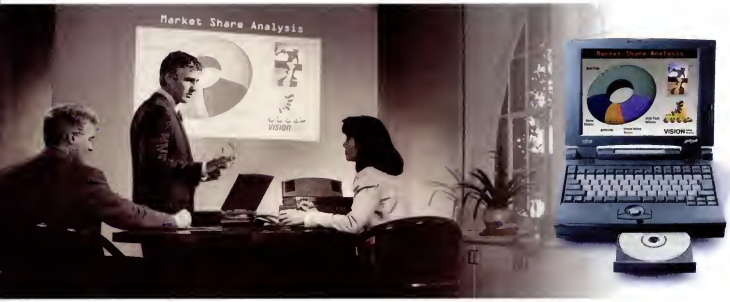
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Remote-access solutions

Vendors show high-speed modems, servers

By Jackie Poole

NETWORLD+INTEROP MOTOROLA, U.S. Robotics Inc., and many other vendors will use NetWorld+Interop as the venue to introduce high-speed modems and analog/ISDN remote-access servers, exploiting the growth in demand for remote-access solutions.

At the show in Atlanta this week, Motorola will announce a 33.6Kbps version of Montana, a fax/modem PC Card with cellular capabilities.

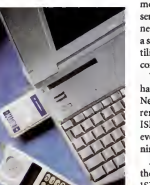
The modem's cellular features include auto-dialing, auto-answering, and a cable detection feature that automatically reconfigures the modem for cellular operations.

"Performance is expected to be as much as 15 percent faster than the 28.8[Kbps] modems, but it is regional-specific; and, on average, users can only expect to see a proportional increase in the connect time," said John Reimer, senior director of Motorola's Mobile Computing Products Division.

But speed is what users want, according to Lisa Pelgrim, an analyst at Dataquest Corp., a market research company in San Jose, Calif.

"The 33.6[Kbps] modems will become standard as companies cannibalize and eventually phase out their 28.8[Kbps] products," Pelgrim said.

Also at the show, Xircom Inc. will demonstrate its mobile connectivity products, the 28.8Kbps version of its CreditCard Modem, and CreditCard Ethernet+Modem.



MOTOROLA'S PC CARD MODEMS *cross boundaries with cellular features.*

The CreditCard Modem achieves data transfer rates as fast as 28.8Kbps and send and receive fax/modem capabilities of 14.4Kbps.

The Ethernet+Modem offers the same features as the CreditCard Modem but adds a high-performance Ethernet LAN adapter. The LAN and fax/modem connections can be used simultaneously.

ZyXel Communications Inc. will announce the Omni TA128 ISDN terminal adapter, a 128Kbps ISDN modem. The modem features two serial interfaces, allowing it to connect as if it were two modems using a single ISDN line. It supports Multilink Point to Point Protocol for connecting to other ISDN devices.

U.S. Robotics will announce a handful of new products, including Netserver 8 and 16 1-Modem remote-access servers, providing ISDN and analog connectivity on every port in one device and running as fast as 33.6Kbps.

Also new from U.S. Robotics are the EdgeServer and Databurst ISDN 128 parallel port terminal adapter. EdgeServer enables consolidation of remote-access and intranet capabilities into a single information-access platform.

Telebit Corp. will show its MicaBlazer analog and ISDN remote-access server configured for 24 or 30 digital modems standard. Telebit will also show Mica for NetWare, WAN interface cards with Mica digital modem technology in 24 or 30 digital modem configurations.

GroupWise to extend to 'net and intranet

■ Novell to support Web publishing

By Sari Kalin

NOVELL INC. unveiled the latest version of its GroupWise messaging and groupware software last week, pitching it as document management for the masses, and revealed future plans to support Web publishing. Novell will also provide a GroupWise 5.0 update next year that will enable users to publish document libraries on the World Wide Web.

This future update, code-named Jefferson, will extend GroupWise 5.0's library system to the Internet and intranets, said Stewart Nelson, vice president and general manager of Novell's groupware division.

GroupWise 5.0 features tight integration with Novell Directory Services, improved Internet access to messaging functions, and a Universal Mail Box that gives users access to e-mail and other messages, calendering and scheduling, task management, and shared folders. Document management is an extension of GroupWise's e-mail folder system, making it as easy to use as e-mail, officials said.

"We're trying to be a product that solves your solution ... ready to go, out of the box," Nelson said.

Novell officials also downplayed any impact CEO Robert Frankenberg's resignation last month would have on sales of GroupWise, which has 7 million users. Contrary to recent speculation, Novell is not in any acquisition discussions, officials said.

"Of course, that [resignation] raises a degree of uncertainty," said Vic Langford, Novell's senior vice president. "We haven't found a slowdown in our products as a result."

Nelson maintained, and Framingham, Mass.-based International Data Corp. research confirmed, that GroupWise is already No. 1 in the groupware market, is No. 3 in messaging, and has what it takes to take on its competitors: Lotus Development Corp.'s Notes and Microsoft Corp.'s Exchange. GroupWise's support of multiple client platforms will give it an edge over the Windows-only Exchange, he said.

Sari Kalin is a Boston correspondent for the IDG News service, an InfoWorld *affiliate.*

IBM unveils its speech technology

By Ephraim Schwartz

THE ELUSIVE GOAL of computer recognition of large-vocabulary, continuous speech is within reach as the result of the announcement last week of MedSpeak/Radiology, a real-time speech-recognition program from the IBM Research Division.

The MedSpeak/Radiology program will allow radiologists to speak in a normal conversational mode, without pauses, using a microphone attached to a sound card in a PC, and have their words appear on screen in real-time. This will allow radiologists to dictate, edit, and sign off on their readings of X-rays, MRI, and CAT scans.

The standard dictation, transcription, editing, and final transcription process costs $15,000 per year per radiologist in a health care facility, according to David Wholley, market development manager for IBM Healthcare Solutions Division. The MedSpeak/Radiology program will dramatically reduce that cost by eliminating the need for transcription in most cases, he said.

However, the statistical engine that drives the program was developed with broader goals in mind, said Paul Roossin, research staff member, at the IBM Research Division, in Yorktown Heights, N.Y.

"As the language model [MedSpeak uses only 24,000 words] increases, as well as the processing power of computers, everything from filling out forms to surfing the Web and making flight reservations will be done via a computer and voice input of information," Roossin said. "Voice control and dictation will be embedded into the OS, just like the use of a mouse is today."

A scaled-down speech-recognition engine is currently part of OS/2 Warp 4 and uses the same algorithms as the MedSpeak program with different language and acoustic models, Roossin said.

The OS/2 version has a dictation mode but uses discrete or isolated speech recognition, with pauses after each word, necessitated mainly by its limited language model and the lack of processing power available to the average user.

MedSpeak requires a 200-MHz Pentium Pro and 128MB of RAM.

High-end PC price reductions

Dell Computer ups ante in price cut wars

By Carolyn A. April

DELL COMPUTER CORP. wielded its PC price ax again last week, chopping price tags on its high-end corporate OptiPlex line by as much as 16 percent.

The Austin, Texas-based direct sales giant said the reductions reflect company savings on components, such as hard drives and memory, that have experienced dramatic drops in price this year.

This is the fourth time Dell has cut prices on the OptiPlex line since January. And, despite the sharp price reductions, the company has enjoyed a gangbuster year. In its recently reported second-quarter results, Dell's net income grew 58 percent when compared with the same period of the prior year.

"They had an outstanding quarter, and they've done a great job at inventory management," said Bill Zinsmeister, an industry analyst at International Data Corp., in Framingham, Mass.

"They are definitely making headway in the corporate world," Zinsmeister noted.

Dell saved the sharpest price cuts for its high-end systems, which are ideally configured to run Windows NT Workstation 4.0 and Windows 95 OSes, the company said.

- The price of OptiPlex GXpro 200, with a 200-MHz Pentium Pro processor, 64MB of RAM, and a 2GB SCSI hard drive, was cut from $5,033 to $4,242 — a 15.7 percent drop.
- The OptiPlex GXpro 180, with a 180-MHz Pentium Pro processor, 32MB of RAM, and a 2GB enhanced IDE hard drive, was reduced in price from $3,076 to $2,718 — an 11.6 percent cut.

All of the OptiPlex systems come pre-loaded with NT and have a 15-inch color monitor, an eight-speed CD-ROM drive, integrated 10MB Ethernet networking, integrated audio, and 256KB of Level 2 cache.

In related news, Compaq Computer Corp. announced last week price cuts ranging from 6 percent to 19 percent on its Pentium-based ProSignia and ProLiant servers.

For the record

A reader question was misrepresented as part of Brett Glass' answer in the Sept. 9 Help Desk column (page 48). Reader Mark Vogel switched from CompuServe to IBM Connection.

The Sept. 2 article "NetDirector shows off Web interface" (page 46) listed an incorrect telephone number for UB Networks Inc. The correct number is (800) 777-4526.

The Aug. 19 Down to the Wire column (page 88) incorrectly stated that Windows NT would experience fatal crashes when used on an Intel Corp. motherboard. It is an Iwill Corp. motherboard that causes these problems, not one made by Intel.

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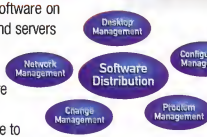
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Host connectivity

Legacy systems to get links to Internet

By Jackie Poole

NETWORK & INTEROP ALTHOUGH new Internet applications may be the talk of NetWorld+Interop, host connectivity vendors at the show will be demonstrating how Internet technologies can be used to link to older applications running on legacy systems.

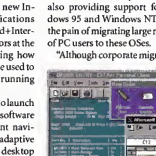
Attachmate Corp. plans to launch a version of its host access software that offers users intelligent navigation tools, bookmarks, adaptive interfaces, and OLE 2.0 desktop application integration.

Extra Personal Client 6.2 is network- and protocol-independent and provides multihost connectivity, Systems Network Architecture-to-TCP/IP capabilities, Internet access, remote LAN access, network software distribution, asset management tools, and a collaborative workgroup.

Microsoft Corp. has certified the new product in Microsoft Office, Windows 95, and BackOffice, providing some peace of mind to companies migrating to 32-bit environments.

Host connectivity vendors are also providing support for Windows 95 and Windows NT to ease the pain of migrating large numbers of PC users to these OSes.

"Although corporate migration to



EXTRA PERSONAL CLIENT *6.2 lets users move between hosts and desktop applications.*

Windows 95 and NT is not happening as rapidly as people had expected, vendors with migration capabilities are at an advantage over the long term," said Elizabeth Rainge, an analyst at International Data Corp., in Framingham, Mass.

Other host connectivity vendors showing their wares at NetWorld+Interop include Eicon Technology Corp. with its multithreaded, multitasking Aviva product, which is also compatible with Windows 95 and Microsoft Office. The company will also demonstrate the Aviva Mainframe Edition, a PC-to-mainframe connectivity product for both Windows 95 and NT that lets end-users access legacy systems and view that data from a familiar application, such as Excel or Microsoft Access, or a customized graphical front end.

Wall Data Inc. will be demonstrating its Rumba and Arpeggio product line host connectivity suites, and Walter Richer and Inc. will be showing its Reflection Suite for TCP 6.5, a 32-bit TCP/IP application suite for creating corporate intranet or Internet workgroups.

Web integration and the rapid development of corporate intranets are providing big opportunities for host connectivity vendors to enhance their software, Rainge said.

"The Internet is going to play consistently into vendor offerings, with Web browsers being used to view information on the host," Rainge said.

Object Design to add Java, desktop support

■ Object database gains Web features

By Ted Smalley Bowen

CONTINUING to exploit opportunities in the Internet software market, Object Design Inc. (ODI) this week will announce the addition of Java support to its ObjectStore object database and will unveil client-side object data stores for Java and C++.

The Burlington, Mass.-based vendor issued an initial public offering in July. It has added a Java interface to its flagship ObjectStore DBMS, which currently supports image, video, text, audio, HTML, time series, and spatial data types.

Although they have been thought to be commercially nonviable, object databases have gained credibility as repositories for Web and Java applications because they provide support for a wider array of data types than relational databases and they offer native, persistent object storage.

"ObjectStore provides native persistence for the Java programmer," said Randolph Harrison, a developer at RLH Consulting Ltd., in Chicago. "With relational databases, you have to deal with the impedance layer. You need to translate all objects into relational subcomponents and write SQL statements to do updates and selects."

ODI will also introduce ObjectStore PSE Pro, a persistent desktop database engine with a Java or C++ interface. ObjectStore PSE Pro can act as a local data store for a single user with transaction-level recovery that connects to multiple databases over a network, according to company officials. Initially available for $250 each, the desktop databases will cost $450 starting next month.

ObjectStore PSE Pro for Java 1.0 runs on Win95, Windows NT, and Solaris. ObjectStore PSE Pro for C++ runs on Windows 95 and NT.

"The desktop storage engine allows you to partition applications for distributed processing and dealing with bandwidth problems," said Justin Perrault, executive vice president at ODI. "PSE allows you to include a lot more complexity, supporting multiple sessions over multiple days."

Where the object purists go

Object-oriented database development has many benefits

- No coding or translation of object model required to store application code
- Broad range of data types supported, including images, sound, HTML, text, video, and time-series data
- Native persistent storage of Java, C++, and other objects

Interop to highlight NT

■ Vendors cluster, synchronize, back up

By Paul Krill and Judy DeMocker

NETWORK & INTEROP A KEY FOCUS of NetWorld+Interop has always been interoperability, and this year many vendors are building in support for Windows NT.

IBM will detail plans to make its Phoenix clustering APIs available on multiple platforms. Possible ports include Windows NT and Unix, according to a source familiar with IBM's plans. These APIs currently are supported on IBM's AIX.

NetVision Inc., in Lindon, Utah, will introduce its product for synchronizing Windows NT servers with a Novell Directory Services (NDS) directory running on a NetWare server. Administrators will be able to manage NT users and groups from NDS.

Formerly called NDS Administration Services for NT (see "NetWare tool will ease NT server setup," July 8, page 40), the product has been renamed Synchronicity. It will be priced at $200 per server plus $10 per user.

Similar products for synchronizing NDS with NetWare 3.x servers and Unix servers also will be detailed. The NetWare 3.x product is due in November, and the Unix version is expected by year's end. NetVision said it plans to extend Synchronicity to Lotus Notes and the Microsoft Exchange mail system by March 1997.

Wang Software Storage Management Group, in Billerica, Mass., and Microsoft Corp. will introduce Open/Stor, a hierarchical storage management product for Windows NT. Due to begin shipping on Oct. 23, the product's base price will be $2,995, plus capacity licenses that will be based on the volume of the files being migrated.

Octopus Technologies Inc., in Yardley, Pa., will announce Octopus Super ASO high-speed mirroring and fail-over software for Windows NT. The product will ship this fall as a $249 option to the $999 Octopus server software.

Transarc Corp., in Pittsburgh, will announce that it plans to resell Intellisoft's DCE/Snare and DCE/Snare Lite network security software, products that extend the Distributed Computing Environment security service to all of the various network applications across an enterprise.

Exchange 4.5 will support Internet protocols

By Ed Scannell and Jessica Davis

MICROSOFT CORP. WILL release Exchange Server 4.5 to beta testing later this month, adding promised support for Internet protocols, and Lotus Development Corp. is expected to release Notes 4.5.

Exchange 4.5 will let browsers for the World Wide Web access the Exchange Inbox, a feature promised earlier this year but one that took the company longer than expected to implement. Exchange 4.5 will not include support for IMAP4 or HTML.

Internet protocols supported in Version 4.5 include POP3, Lightweight Directory Access Protocol, HTTP, and Network News Transfer Protocol, company officials said.

Also included in Version 4.5 will be Outlook, the upgrade to the Exchange client. Outlook is a workgroup, collaboration, and e-mail client that provides users with task and contact lists as well as other features borrowed from Microsoft's Schedule+.

Although Microsoft officials would not say that Outlook replaces the existing Exchange 4.0 client, many observers believe that it will.

"I think the killer here is Outlook. It takes Exchange to the next level, because it can serve as anything from a desktop or personal manager to a way to collaborate on documents even outside of Outlook," said John Dunkle, president of Workgroup Strategic Services Inc., a consultancy in Portsmouth, N.H.

"Outlook basically replaces the Exchange client. It is the logical progression of what the mail client should be. It is going to be a good thing," said Mike Drips, an independent consultant for several Fortune 100 accounts, in Overland Park, Kan.

Not to get drowned out by the Microsoft marketing drum, archrival Lotus is expected to announce delivery of Notes 4.5 at this week's NetWorld+Interop show in Atlanta.

"They have redesigned it [Notes 4.5] in terms of how the user will interact with it. Everything appears nicely integrated, including the Web stuff. It should be viewed as a topper release," Dunkle said.

The improved version of Exchange will also include a cc:Mail connector, which lets users do directory synchronization; person-to-person key exchange, making it possible for users to send encrypted mail using the Secure Multipurpose Internet Mail Extensions protocol; and tools designed to take the pain out of migrating from competing groupware products, including GroupWise and Collabra Share.

Microsoft is already planning the next major upgrade to Exchange, Version 5.0, and a new version of Outlook, both of which will be made up of a series of ActiveX components that offer functionality from the original Outlook client.

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Has It Changed Your Life Yet?

Via's Apollo P6 chip set competes with Natoma

■ Three-chip chip set positioned as a less expensive alternative to Intel's

By Andy Santoni and Terho Uimonen

CORE LOGIC VENDOR Via Technologies Inc. is sampling a Pentium Pro three-chip chip set, the Apollo P6, that offers motherboard and system suppliers a faster, less expensive alternative to Intel Corp.'s three-chip 82440FX (Natoma) chip set.

Volume production should begin later this month, according to a representative at the company's Taipei, Taiwan, office.

Furthermore, Via expects to sample an even less expensive two-chip Apollo Pro version of the chip set in the first quarter of 1997, according to Dean Hays, director of marketing at Via's Fremont, Calif., operation.

The Apollo P6 chip set includes support for Synchronous DRAMs (SDRAMs), which enable systems to offer at least 5 percent higher performance than those using Intel's Natoma chip set, which does not include SDRAM support, Hays said.

"SDRAM gives you better memory bandwidth," Hays said.

The Apollo P6 integrates Universal Serial Bus support along with real-time clock and keyboard controller circuitry that Natoma lacks, Hays said. Lower parts count improves reliability and cuts manufacturing costs, he noted.

Intel's chip set offers high reliability, too, an Intel representative said, noting that the products have been in production and installed in systems since May.

Features of Via's core logic chip set

- Three chips; two chips in the first quarter of 1997
- Support for Synchronous DRAM
- Implement Universal Serial Bus
- Real-time clock
- Keyboard controller

Price and reliability are important factors in choosing a PC, said Mark Perl, a product manager at Visa USA Inc., in San Mateo, Calif. But users do not weigh the core logic chip set's maker in buying decisions, he said.

"I don't believe most corporate buyers do," Perl said, noting that the core logic's operation should be transparent to the user.

Via is in talks with several prospective customers about the chips, Hays said. First International Computer Inc., a Taipei-based board maker affiliated with Via, will have sample quantities of its PA-6010 motherboard featuring the Apollo P6 ready later this month, company officials said. Pricing for the PA-6010 has not been set, but a representative said initial pricing will be about $170 to $180, dropping to $150 by year's end.

In comparison, an Intel VS440FX Pentium Pro motherboard, packed with cables and software, sells to VARs for less than $300, according to an Intel representative.

Terho Uimonen is the Taipei, Taiwan, correspondent for IDG News Service, an InfoWorld *affiliate.*

MICROSOFT FILLS OUT WEB SERVER WITH DENALI

By Jim Balderston

LAST WEEK Microsoft Corp. began a closed beta test of its ActiveX server-side scripting technology that promises to give users a single Web server platform for both development and management.

The open beta program will begin in the fourth quarter, said Tanya van Dam, group product manager for Microsoft Internet Server Group, in Redmond, Wash. But according to one source, Microsoft will deliver the final product at that time.

The ActiveX scripting language, code-named Denali, will let developers create applications using ActiveX components that tap in to back-end services, such as database access, from the client or server, van Dam said.

"Very simply, you will be able to do scripting and objects on a server, then ship information to the browser via the Internet and HTTP," van Dam said.

Denali can determine what kind of browser is accessing the server and decide if a component can be sent to the browser to run, offering greater efficiency, van Dam said.

Microsoft is also working to let Denali run existing Common Gateway Interface scripts, sources said.

With Denali, users can create applications that store historic information about Web surfers. For example, a retail store could create an application that remembers the last purchases or preferences of a repeat visitor, van Dam said.

Denali will run on Microsoft's Internet Information Server but may be ported to other servers, van Dam said. Denali will also let companies manage the state of user access to their Web servers.

"Denali is a significant enabler that allows a company to outsource the creation of a Web site initially, and then manage it in-house," said Rob Enderle, an industry analyst for Santa Clara, Calif.-based Giga Information Group. "Once the site is set up, changes to it could be made by clerical staff."

Denali server-side scripting capabilities initially may focus on Web sites but will also be used in conjunction with other Microsoft technologies, such as its Viper transaction manager, to build distributed applications made of components residing throughout a network.

Viper is due in the first quarter of next year.

Electronic commerce gains momentum

By Luc Hatlestad

VENDORS AT TWO TRADE SHOWS this month have announced a variety of technologies designed to make electronic commerce a reality and get consumers and businesses buying and selling online.

Vendors displayed products at the Internet and Electronic Commerce show and the Internet Commerce Expo (ICE). (See chart, right.)

NEWS ANALYSIS

Recent studies predict that electronic transactions will run into the billions of dollars within the next five to 10 years. Although basic electronic-transaction technology is now available, most observers think it will be several years before users feel comfortable with the idea of using a computer as a tool for shopping and banking.

"People on the technical side blame users' security concerns for any delays in acceptance, but that's not the real obstruction," says David Ferris, president of Ferris Research Inc., in San Francisco. "There was initial resistance to ATMs [automated teller machines], voice mail, and answering machines as well. People take time to develop habits and get comfortable with new technology."

According to Ferris, the most basic types of transactions will be the first to gain acceptance.

"The easiest things are credit card purchases, so they'll probably grow the quickest," Ferris says. "Shopping and ordering functionality is still being refined."

One obstacle is disparity between the PCs that people use at home and at work, industry observers say.

"People use the Internet all the time at work, but it's usually running over a T1 line, so they get frustrated at home because their connection is too slow," says Cathy Medich, director of marketing for VeriFone Inc., the Redwood City, Calif.-based maker of vGate and vPOS Internet hardware and software transaction products.

Electronic commerce will also bring about the marriage of two industries that are relatively unfamiliar with each other's methods.

"Banks are used to strategizing in years, while the technology industry does it by months," Medich says.

Despite user concerns about sending sensitive personal information via computer lines, many analysts think that widespread electronic commerce will one day become a reality.

Products and services at the ICE show

IBM: CommercePoint partnership with KPMG, MasterCard, TradeWave, and Unibex

Silicon Graphics Inc.: WebForce alliance with BroadVision, CyberCash, EveryWare Development Corp., Netscape Communications Corp., Open Market Inc., and Virtual Open Network Environment Corp.

Folio Corp.: Folio 4 publishing, managing, and distribution software *(shipping in the fourth quarter)*

Best Internet Communications Inc.: Best Business Commerce Server *(shipping now)*

Centor Corp.: CenWare and Mmorf Intranet catalog creation software tools *(shipping now)*

LeveiS Research: Quest Server 2 0 database-publishing tool

Terisa Systems Inc.: SecureWeb Documents data-transaction client *(shipping in the fourth quarter)*

"It will become a big business because it makes economic sense," Ferris says. "However, the true potential for buying and selling on the World Wide Web may lie in enabling new kinds of activity rather than simply moving existing commerce online."

"The more you think in conventional terms, the less interesting electronic commerce becomes; the more you think of new opportunities, the more interesting it is," says Michael Goulde, senior consultant at Patricia Seybold Group Inc., in Boston.

"There are so many interesting things to do on the Internet, I can't imagine using it to buy a pair of Reeboks," says Jerry Michalski, editor of *Release 1.0*, an industry newsletter based in New York.

LDAP is key to bridging NetWare and NT

By Paul Krill

NOVELL INC.'s initial implementation of Novell Directory Services (NDS) on Windows NT will rely heavily on the Lightweight Directory Access Protocol (LDAP) to link NT applications to the directory.

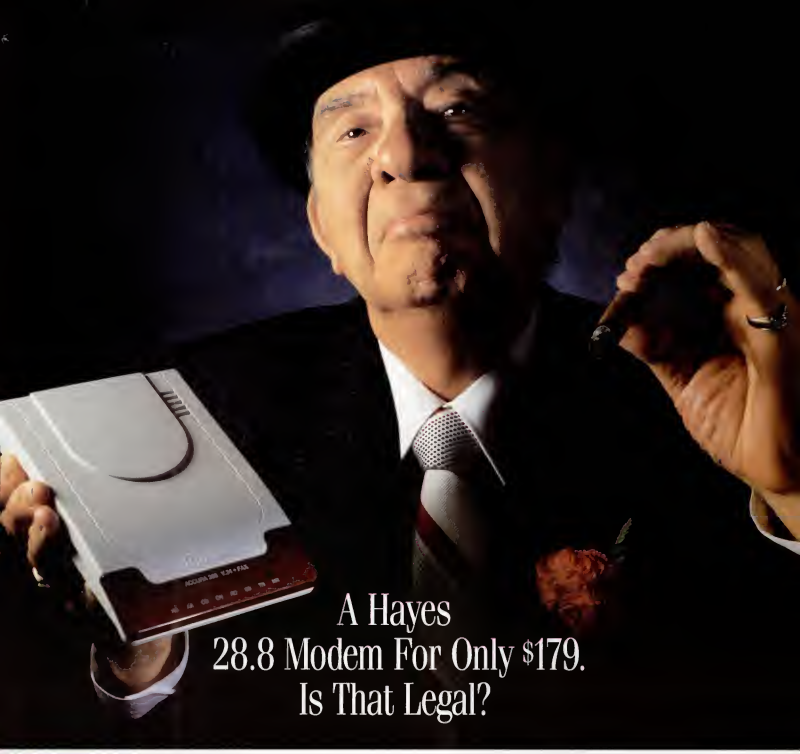
The native version of NDS on NT, due by June 1997, will use LDAP as a mechanism for developers to build applications that browse information in the directory, said Michael Simpson, Novell's director of Internet infrastructure, in Orem, Utah. LDAP is a standard for bridging directories.

Users will also be able to manage users and groups on NT via NDS with a utility, code-named Tabasco, due for release by year's end, Simpson said. Tabasco will enable NT user and group management via NDS and the FWAdmin administration utility operating on a NetWare server.

A subsequent release of native NDS on NT, due after mid-1997, is intended to replace the current directory domain structure on NT, which many users find complicated to use. By October, Novell will enable NT workstations to be managed without setting up an NT server domain, prior to the release of NDS on NT.

But one user, while praising the benefits of NDS as a tool for managing multiple sites, said Novell may have missed its chance.

"A year ago, we started implementing NT Workstation and would have liked to have not set up an NT domain structure," said Ted Cash, project leader at Hoechst Celanese textiles company, in Charlotte, N.C. "But we have it in place now, so Novell is a year late with its product."



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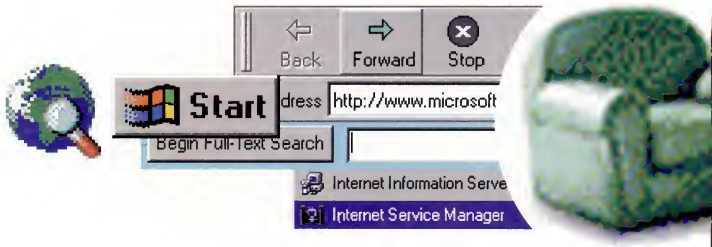
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Microsoft Windows NT Server 4.0

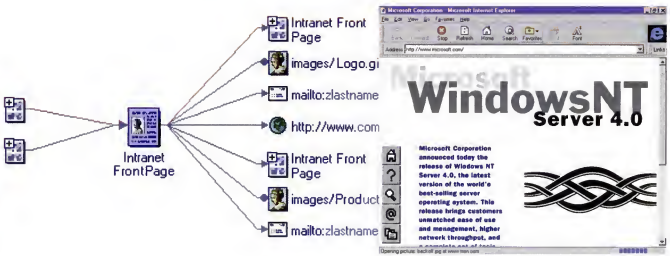
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Oracle chooses IIOP over Microsoft's DCOM

By Mark Leon

ORACLE CORP. has thrown its weight behind the Internet Inter-ORB Protocol (IIOP) and its key endorsers, Netscape Communications Corp., in the battle with Microsoft Corp. over Web-based object protocols.

Saying the IIOP is the only open standard capable of supporting the next generation of dynamic Web applications, Oracle has committed to supporting the protocol in the next release of its Web Server, due by year's end.

The support means Web Server 3.0 will include an IIOP-compliant object request broker. IIOP is the basis for interoperability between CORBA object middleware. Oracle plans to include CORBA support across its entire product line, including its Developer 2000 tool, Sedona object middleware, and database servers, company officials said.

Oracle will not endorse Microsoft's Distributed Common Object Model (DCOM)-based ActiveX framework until Microsoft makes DCOM an open standard, officials said.

"They need to give [DCOM] to a standards body, provide all the pieces so it isn't tied to just Windows, and support any changes in it that the standards body implements," said Mark Jarvis, vice president of server marketing at Oracle, in Redwood Shores, Calif.

Jarvis said the standards war between IIOP and DCOM could hinder development of compelling Web applications by small ISVs that may not be able to support both. However, some developers were less concerned.

"Object protocols are not yet mainstream," said Mark S. Douglas, president and CEO of CenterView Software Inc., a Web database tools vendor in San Francisco. "Distributed objects will take off, but the more immediate issue is hooking up to relational data over the [World Wide] Web."

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FOLIO 4 MAKES USE OF ACTIVEX, APIS FOR THIRD-PARTY APPS

By Chris Jones

FOLIO CORP. last week announced the newest version of its Folio program that converts large amounts of data from most word processors and graphical file formats for indexing, searching, and electronic publishing. And for the first time the programming interface will be open to third-party developers.

Folio 4 will include Folio Integrator, a component-based software-development environment with ActiveX controls and APIs with which developers and systems integrators can build customized applications. The new version also features a redesigned interface, support for tables, a dramatic increase in indexing speed, and a natural-language processing engine for submitting queries, said a company representative, in Provo, Utah.

Users said that the development toolkit will give them greater flexibility in designing publishing systems with links to the Internet.

"The engine is enormously fast at processing and compressing large amounts of data. ... We've used it in libraries with upward of 100,000 images," said Betsy Ashton, director of Newsview Solutions at Lexis-Nexis, in Dayton, Ohio. "The toolkit in 4 is awesome. We'll be doing some customizing with ActiveX capabilities in building Web tools this year."

Folio 4 includes Folio Views, a user interface for searching and viewing files or graphics via internal networks or the World Wide Web; Folio Builder, an interface for filtering, converting, and compiling legacy documents into a Folio database for distribution; and Folio Publisher for delivering applications and content on CD-ROM, networks, and intranets.

The Folio publishing system is used primarily by businesses such as law firms, insurance companies, and accounting firms that need a means of distributing and managing large amounts of business-critical information. Due to ship in the fourth quarter, Folio 4 will support Windows 3.x, Windows 95, Windows NT 3.51, and Windows NT 4.0.



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Novell

Continued from page 1

fer Protocol) support and will preview enhanced TCP/IP for NetWare. To make NetWare better integrate with Windows NT networks, the company plans to release in October software for managing NT Workstation PCs without setting up Windows NT Server domains.

The first products to ship in Novell's renewed Internet push will be IntranetWare and NetWare 4.11, which is itself a component of IntranetWare but will also be sold separately, according to the company. Both packages are expected to ship soon.

Prices have not been set, but solutions based on the two products should cost about the same as the existing NetWare package, which costs $2,495 for 10 users.

Adding FTP services to IntranetWare — a package for setting up intranets that includes Netscape Communication Corp.'s Navigator Web browser and an IPX/IP gateway — will allow users to transfer files to and from NetWare servers via the common Internet-based

Novell maps out fall schedule

September

- Unveil IntranetWare Intranet package
- Roll out NetWare 4.11
- Beta test enhanced TCP/IP support

October

- Ship management utility for Windows NT Workstation

protocol, officials said.

One user said FTP support in IntranetWare was a good idea.

"It would be great because we're always looking at ways of getting files in and out to people on the road and other locations," said Ed Wilk, IS manager at television station WHDH, in Boston.

In another critical area, Novell this month will begin beta testing enhanced TCP/IP support for NetWare.

Although Novell officials insist that NetWare fully supports TCP/IP today, the existing method of requiring IPX headers for IP transmission has left some users dissatisfied with its performance.

The new TCP/IP package will enable the NetWare Core Protocol to be transmitted over IP through support of the User Datagram Protocol, eliminating the need for IPX header information but providing backward compatibility, said William Donahoo, Novell senior director of NetWare product marketing, in Orem, Utah. A general release will happen soon, said Donahoo, who declined to give a specific release date.

Better IP support will help bring Novell in line with other vendors, who are converging on IP as a standard NetWare packet protocol, said one NetWare user who requested anonymity.

"It's something I think Novell should have had out a couple years ago," the user said.

Novell is also looking to answer complaints that it is too focused on NetWare by bolstering its Windows NT support. Novell plans to release in late October an enhancement to its new NT 4.0 client that will enable management of NT Workstation clients in a NetWare environment without the need to set up an NT Server domain, Novell officials said.

This enhancement will make NetWare easier to handle in Windows NT networks; many users complain that management of NT Server domains is too complicated.

Novell's plans to improve management of NT 4.0 clients are separate from the company's plans to enable management of NT systems via the Novell Directory Services network directory.

Palmtops

Continued from page 1

is Microsoft's answer to the much-ballyhooed Network Computer (NC) promoted by Oracle Corp., IBM, and other vendors.

"Microsoft's view of what an NC is is Windows CE," said Rob Enderle, an industry analyst at Giga Information Group, in Santa Clara, Calif.

"Bill Gates has said his vision for an Internet device is a small handheld device," Enderle said.

Windows CE is based on an entirely new kernel and is not a derivative of Windows 95, as has been widely speculated, company officials said.

The operating system will support flash memory cards and static RAM, require 4MB of RAM, have a 32-bit API development environment, and sport a Windows 95 GUI.

Pocket versions of Microsoft Word and Excel will be bundled with the OS, as well as an e-mail client and a version of Internet Explorer for connecting to the Internet and the World Wide Web.

Six hardware vendors will introduce Windows CE-based handheld computers at fall Comdex in November: Compaq Computer Corp., Hewlett-Packard Co., NEC Computer Systems Inc. (a subsidiary of Packard Bell-NEC), Casio Computer Products Ltd., Philips Consumer Electronics Inc., and LG Electronics USA Inc.

The target price for the devices is $500, Microsoft officials said.

This week, a plethora of software developers, PC Card modem vendors, and wireless network providers, including Ardis Corp., pledged their support for the platform.

The hand-held devices are based on reference specifications outlined by Microsoft. Each will be based on a RISC processor and sport a PC card slot, a QWERTY keyboard, and a gray-scale LCD.

The dimensions and weight will vary with the vendor, but the devices are expected to weigh about 1 pound and measure 3 inches wide by 5 inches long.

One analyst compared the form factor to Sharp Electronics Corp's Zaurus, which is currently the No. 1 PDA in the U.S. market.

Users familiar with the products said they gave the devices high marks for ease of use, ease of synchronization with the desktop, storage capacity, and its familiar Windows-based GUI.

"You turn it on, look at the screen, and say, 'Hey, I know how to use this,'" said one user who is testing three of the six products. "It's Windows."

3Com

Continued from page 1

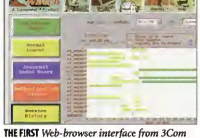
management of 3Com's AccessBuilder remote access products and will continue in December with Web access to remote monitoring statistics through Transcend LANsentry.

Transcend users will be able to manage all 3Com devices through a browser interface in the next 18 months, officials said.

Users will be able to install the Transcend software on a standard Web server or purchase a dedicated Web server from 3Com. Officials said eventually 3Com will embed a Web server in all of its network hardware.

John Morency, a principal at The Registry Inc., a consulting company in Newton, Mass., said browser-based management will benefit both network managers and users.

"Up to this point, administrators have primarily relied on Telnet for managing the network whenever they are away from the console," Morency said. "Now, instead of cryptic line-by-line commands, they will be able to use a Web browser to access the same management information."



THE FIRST *Web-browser interface from 3Com will manage its AccessBuilder devices.*

Other networking vendors, including Cisco Systems Inc. and Cabletron Systems Inc., have offered Web-based viewing, but Morency said 3Com is overtaking them.

"Until now, you haven't been able to change the status of a device or add and delete objects through a Web browser," Morency said. "Having read/write access is a fundamental requirement to give support staff flexibility."

Morency added that the browser capabilities will bolster 3Com's OfficeConnect line of small-office products by providing a familiar interface for network management novices at those sites.

Network managers will be able to give users read-only access to Transcend data and control how much they can see. Morency said this will help to ease the uncertainty of users stranded without access to network resources, particularly on intranets.

"For users, no news is bad news," Morency said. "At least they will have access to something that will give them some basic information on the problem."

3Com officials said the Transcend applications will retain their existing Windows interfaces and that Java will allow the company to add dynamic graphical features. Transcend LANsentry, for example, will provide graphs updated in real time, and users studying a page that includes six graphs will be able to expand one on top of the others for a closer view.

Netscape

Continued from page 1

technology will be made available in "the time frame of the next release of Navigator," Greenberg said.

Navigator 4.0 is scheduled to be previewed at the Netscape Developers Conference in October.

The Java object signing model will also provide users with tools that will allow them to sign Java objects, Greenberg said, which will complement not only the sandbox management feature but also existing code-signing initiatives such as Microsoft Corp.'s AuthentiCode.

Because of built-in security features in the Java programming language, Java-built objects are not currently capable of accessing certain resources on a host computer, such as the hard drive.

"What we are doing is giving Java the full range of resource use on a computer," Greenberg said.

Greenberg noted that, because of Java language definitions, the sandbox management tool will warn a user before the object causes damage.

"With Java classes defined, you can tell what resources will be accessed by an object," Greenberg said. "You would be warned of a drive format, for example."

Greenberg said Netscape is also considering virus scanning and Java class scanning as future features of the Java object signing model.

The AuthentiCode initiative is Microsoft's attempt to deal with security concerns raised by downloading ActiveX components. ActiveX components, unlike Java applets, have access to the entire host computer, including hard drives, but there is no way to limit that access. And ActiveX components can execute functions such as turning off the host computer or erasing or damaging hard drives. (See "ActiveX security questions raised with Internet Exploder," Sept. 9, page 6.)

The AuthentiCode initiative allows developers to obtain a certificate through VeriSign Inc. that can be presented to the user of the ActiveX component before the user authorizes a download.

Although Microsoft has argued that security issues with ActiveX are less important than its capability to enable direct interaction with the OS, Netscape can now argue that it has the best of both worlds.

"ActiveX was designed for full access to the system; Java was designed for safety. Now Java can do much of what ActiveX can do," said Martin Haberle, director of technology at Netscape.

Analysts said the key to Java applet security would be high-grade certification.

"If a certificate can be tied to the code, then it can shut the door before any harm is done. That will provide real security," said Rob Enderle, an industry analyst at Giga Information Group, in Santa Clara, Calif.

Choosing the best hardware to run Windows NT® 4.0 has forced IS managers to confront their biggest fears:

Failure.

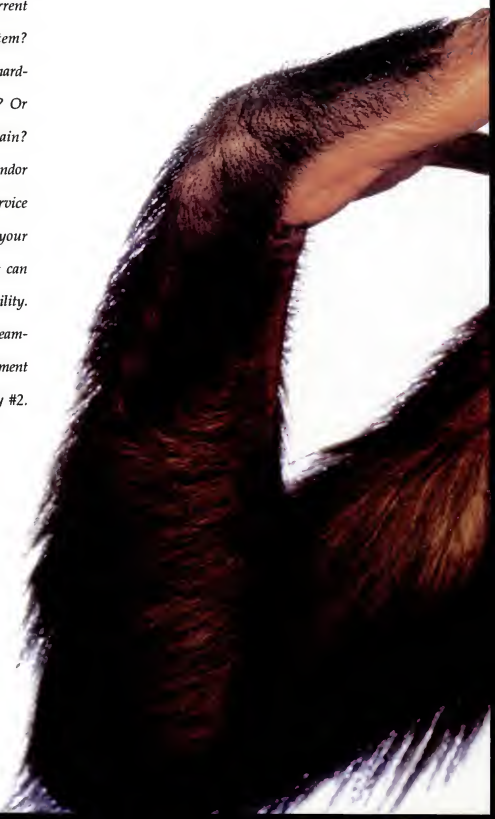
Monkey on your back #1. *Let's face it, migrating to another operating system does involve risk. And now that Windows NT® 4.0 lets your users access mission-critical information right from their desktops and laptops, how do you ensure data availability? By far the most reliable way is through clustering – a technology one company was the first to develop for Windows NT to ensure automatic failover and maximum availability. For you, clustering for Windows NT means uninterrupted access, reduced risk, greater peace of mind—oh, and one less monkey on your back. Read on…*

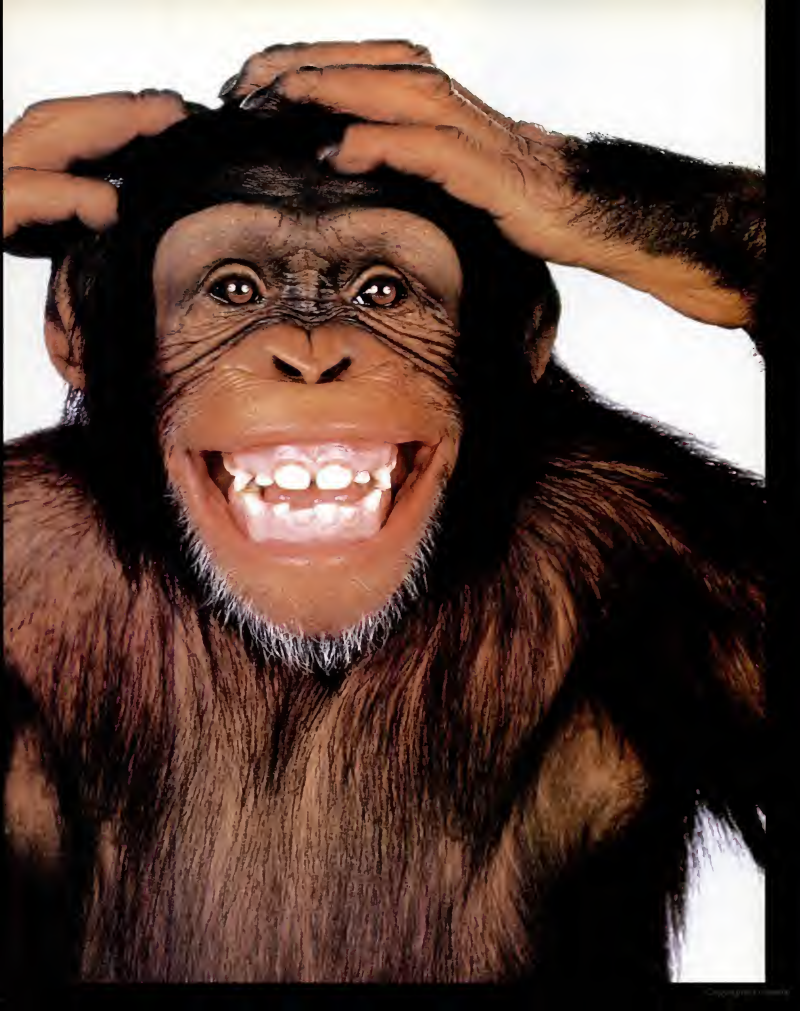




Finances.

Monkey on your back #2. *Budgets. What about the budgets? How will your current apps work with your new operating system? Will the upgrade work across your existing hardware, operating systems and applications? Or should you bang on your CFO's door again? One company with over 35 years of multivendor integration experience, including global service and support, can do more than just port your apps to Windows NT® It's a company that can give you complete Windows NT interoperability. Which means your information will flow seamlessly across platforms, and your legacy investment will be well protected. So much for monkey #2. Now on to #3…*





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Monkey on your back #3. *Migrating to Windows NT® 4.0 is one thing. But committing to Windows NT long-term, relying on it to play a critical role in your enterprise, that's another. Fortunately, one company—the one we've been talking about—can help. Digital. With our heritage in VAX, multivendor integration, enterprise-level computing, Ethernet and the foundations of networking, Digital is uniquely suited to greatly improve your future. Our newest servers, workstations, desktops and notebooks are every bit as enterprise-ready as Windows NT. In fact, today no other vendor can equal Digital's full line of Windows NT-optimized products across Intel and Alpha platforms, or the service and support that can help keep the monkeys off your back. Simply put, no one is better prepared to show you that migrating to Windows NT doesn't have to drive you bananas. Call 1-800-DIGITAL and press 3 for your nearest reseller, or visit our Web site at www.windows.digital.com.*

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ANNOUNCED

trigue will make an appearance at NetWorld+ Interop in Atlanta this week when Insignia Solutions Inc. rolls out its client software for accessing Windows applications over the Internet and on intranets. Priced at $69, the Ntrigue Net Client software, shipping this week, is available for Unix and Macintosh systems and works with Windows 95, Windows 3.x, and Windows NT applications. The $299 software package will let users of Silicon Graphics Inc.'s workstations run Windows applications on top of their Unix environment. (800) 848-7677.

SOFTWARE PUBLISHING CORP. last week announced ActiveOffice, a Microsoft Office companion tool that takes text and numbers from Word, Excel, Exchange Mail, and PowerPoint and turns them into colorful business graphics — tables, charts, and other visuals. Shipping in the fourth quarter, ActiveOffice runs on Windows 95 and Windows NT and will cost $50. (800) 336-8360.

TOSHIBA AMERICA INFORMATION SYSTEMS INC. announced its line of desktop PCs targeted at the home market. The Infinia systems are being pitched as multimedia consumer appliances that can serve as telephones, answering and fax machines, televisions, radios, and CD players, as well as computing devices. The PCs are available with 133-MHz, 166-MHz, and 200-MHz Pentium processors, 16MB or 32MB of RAM, and a hard drive that can be as large as 3GB. They feature eight-speed CD-ROM drives and 53 Inc.'s Virge 3-D video and graphics accelerator, and they use the Universal Serial Bus for expansion options. The company has not included digital-video disc (DVD) drives in the current Infinias, but it said the systems will be upgradable to DVD using an upgrade kit available in late this year or early 1997. Pricing ranges from $1,699 to $2,799. (800) 999-4273.

OmniBooks pack power lightly

■ HP introduces 3.75-pound 133-MHz notebook

By Carolyn A. April

SEEKING TO broaden its reach in the notebook market, Hewlett-Packard Co. last week took the wraps off its new ultraportable line and at the same time slashed prices on its high-end OmniBook 5500 series by as much as 15 percent.

The lightweight OmniBook 800 is the long-anticipated successor to HP's 486-based OmniBook 600 subnotebook series. The OmniBook 800 packs more power than its predecessor, sporting either a 133-MHz or a 100-MHz Pentium processor. It also features PCI bus architecture, a 10.4-inch active matrix screen, 16MB of RAM, and a 1.44GB hard drive — all housed in a compact 3.75-pound package.

The notebook, which HP is positioning against other slim-and-trim offerings from IBM PC Co., Compaq Computer Corp., Digital Equipment Corp., and Toshiba America Information Systems Inc., includes NeoMagic Corp.'s 128-bit PCI graphics controller, 16MB of RAM, an infrared port, 256KB of Level 2 cache, a SCSI-2 port, and two Type II or one Type III PC Card slots. The floppy drive is external.

Although they praised the OmniBook 800's compact design, some analysts said it has a tough row to hoe against competitors' slimline models, particularly those that sport larger 11.3-, 11.8-, and 12.1-inch screens.

"[HP] positions it as a more rugged system than others, less flimsy, and it is easy to use on planes," said Diana Hwang, an analyst at International Data Corp., in Framingham, Mass. "But I think the trend is larger screens. That will be a challenge for [HP]."

The OmniBook 800 is now shipping, noted Tuan Tran, OmniBook product manager. Tran said HP company described as routine reductions to keep in step with competitors. HP also chopped as much as 45 percent off the prices for hard drives and memory-expansion modules for the notebook series.

OmniBook 5500 CT, with a 133-MHz Pentium processor, 16MB of RAM, a 2GB hard drive, and a 12.1-inch active matrix display, has been reduced in price by 15 percent, from $6,150 to $5,220. OmniBook 5500 CT, with a 133-MHz Pentium chip, actually held off introducing the product earlier this summer to fill the channels with inventory and avoid the backlog of orders it has experienced with its high-end OmniBook 5500 series.

The 800 CT, with a 133-MHz Pentium processor costs $4,850. The 800 CS with a 100-MHz Pentium processor costs $3,390. An external quad-speed CD-ROM drive and a low-footprint docking station are sold as options, priced at $420 each.

Meanwhile, HP cut prices on its OmniBook 5500 notebooks by as much as 15 percent in what the 16MB of RAM, a 1.35GB hard drive, and a 12.1-inch active matrix display, has also been cut in price by 15 percent, from $5,690 to $4,840.

A 2GB hard drive has been slashed in price from $2,540 to $1,400, a 45 percent reduction. An 8MB memory expansion module has been cut in price by 36 percent, from $335 to $215; a 16MB module's price has been reduced by 34 percent, from $660 to $440; and the 32MB module has been reduced in price by 41 percent, from $1,320 to $780.

HP, in Corvallis, Ore., can be reached at (800) 443-1254.

Lightweight notebook competition intensifies

HP hopes trend will favor small screen and sturdy case

Make/model	Processor	Screen	Hard drive	Memory	Weight	Price
HP OmniBook 800 CT	P133	10.4-inch TFT	1.44GB	16MB	3.75 pounds	$4,850
IBM ThinkPad 560	P133	12.1-inch TFT	1.08GB	8MB	4.1 pounds	$4,199
Digital HiNote Ultra II	P133	11.3-inch TFT	1.35GB	16MB	4.0 pounds	$4,999
Toshiba Portege 650 CT	P133	11.3-inch TFT	1.26GB	16MB	4.8 pounds	$4,499
Compaq Armada 4100	P133	11.8-inch TFT	1.0GB	16MB	5.0 pounds	$4,599

TFT=Thin-film transistor

OUTLOOK TO TURN OFFICE 97 INTO GROUPWARE

By Chris Jones

WITH A REVAMPED interface and newly integrated workgroup features controlled by the Outlook information and scheduling application, Microsoft Corp.'s Office 97 might just become the custom van of the '90s suite market.

When Office 97 ships later this year, Outlook will make its debut as an umbrella application that, when integrated with the Exchange database and the Word and Excel applications, will control the workflow of documents and information across enterprise networks and the Internet to offer users dozens of options. Office 97 will include Visual Basic for applications, and, with other tools, it will be used to create customized forms and application links. The suite is being positioned as a comprehensive desktop platform, encroaching on the workgroup space dominated by Lotus Development Corp.'s Lotus Notes.

Analysts said that Office 97 is evolving naturally by adding groupware and Internet features.

"The inclusion of greater information management and scheduling is a very natural thing, and it's an area where Lotus had an advantage with Organizer," said Michael Pinckney, an analyst at Gartner Group Inc., in Bellevue, Wash.

▷ **OFFICE 97** *page 36*

Microsoft incompatibilities

Windows NT Workstation 3.51 will not open Explorer 3.0

By Ed Scannell

USERS LAST WEEK expressed disappointment in being unable to use Microsoft Corp.'s Internet Explorer 3.0 with the company's Windows NT Workstation 3.51-based desktops.

In trying to download Internet Explorer 3.0, users are presented with an on-screen message that they need to upgrade to the recently released Windows NT Workstation 4.0, priced at $149 for existing NT Workstation users, if they want Internet access.

"Users will just have to spend the money [to upgrade to NT 4.0] if they want the access. What I think we will do for those [NT 3.51] users is put [Netscape Communications Corp.'s] Netscape [Navigator] on those machines," said Bill Cornfield, president of the Windows Users Support Group, in New York.

USER RESPONSE

"Apparently you need the shrink-wrapped version of NT 4.0 to get Explorer 3.0, which may be too bad for some accounts. It is not a big problem for us since we are still evaluating NT Workstation here," said Brian Moura, assistant city manager and finance director for the city of San Carlos, Calif.

Microsoft officials said they plan to make versions of Internet Explorer 3.0 available by year's end for Windows 3.x, which continues to sell reasonably well in the estimation of some industry observers. Microsoft officials said they haven't decided if or when they might release a version for NT Workstation 3.51 users.

Microsoft still bundles Internet Explorer 2.0 with Windows NT 4.0 because the new version of Explorer was not available when NT 4.0 went to manufacturing. Users can download Explorer 3.0 for free.

According to International Data Corp. (IDC), in Framingham, Mass., Microsoft sold 565,000 copies of Windows NT Workstation 3.51 in 1995, and it will sell another 430,000 copies of 3.51 this year. The bulk of the 2.3 million of Windows NT sales will be for 4.0, according to IDC.

However, even prospective NT 4.0 desktop users may still decide to stick with Netscape Navigator.

"We plan to upgrade to NT 4.0 on most desktops by the first of the year, but we will use Netscape even on those systems and disable Internet Explorer [2.0]," said Warren Smith, an IS manager with a large West Coast-based telecommunications company.

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February 20, 1996
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Helpful hint:

Rip out and pin up next to Compaq and IBM ads.

A little comparison shopping will quickly show you that HP puts the best prices on the most impressive PCs. One standout is the network-ready Vectra XM. It's configured for the most demanding networks with LAN Remote Power, Super-fast LAN install and HP Vectra Op-Center for more effective remote management. Every Vectra will outshine the competition when it comes to features and price. From the Pentium® processor-based PCs to the dual Pentium Pro processor-based HP Vectra XU PC. For more information or the name of your nearest HP reseller, call 1-800-322-HPPC, Ext. 1701! Or visit us at http://www.hp.com/go/vectra.

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Cirrus encoder/decoder chip to add speed to CD-R/E drives

By Andy Santoni

CD-RECORDABLE DRIVES (CD-R) with six-speed-read and dual- or quad-speed-write performance should be available by fall Comdex thanks to new encoder/decoder chips such as the ones announced last week by Cirrus Logic Inc.

These same chips will also pave the way for future CD-Recordable and Erasable (CD-R/E) drives with 18-speed-read and eight-speed-write disk speeds, according to J. D. Estella, product marketing manager in the optical storage division at Cirrus, in Fremont, Calif. The devices are available in SCSI and Enhanced IDE/ATAPI interface versions. Sample quantities will be shipping within weeks; production volumes will be available by year's end, Estella said.

The fastest commonly available CD-R drives currently have quad-speed-read and dual-speed-write capabilities, Estella said, with six-speed-read capability coming soon.

The CL-CR3560 encoder/decoder has a single-ended SCSI interface and supports the SCSI-2 industry standard, making it compatible with a variety of peripherals, Estella said.

The market for recordable (write-once) and erasable (rewritable) CD drives is growing quickly, said James Porter, president of DiskTrend Inc., a market research company in Mountain View, Calif.

Driving this growth is the sharp decline in price, Porter noted. The earliest devices were priced at thousands of dollars and served a limited market. Now CD-R drives sell for $800 to $900 and meet a wider range of applications, such as training, catalogs, actuarial tables, and service data that is distributed to small numbers of users, Porter said.

Although the Cirrus devices serve the demand for high-performance drives, "there are still issues to be addressed," said Geoff Ballew, an industry analyst at market research company Dataquest Inc., in San Jose, Calif.

The devices' speeds give drive designers some headroom, so the encoder/decoder circuitry is not the limiting factor in the design, Ballew said. However, the rest of the drives' electronics, as well as their mechanical parts, may not keep up with 18-speed or eight-speed performance. Designing such products "is not a no-brainer," Ballew said.

Meanwhile, Yamaha Corp. announced last week that it will introduce at fall Comdex a six-speed-read, quad-speed-write CD-R drive that uses its own encoder/decoder chip. It will be priced at $350 in OEM quantities, according to a company representative.

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Office 97

Continued from page 33

The Word and Excel toolbars will have added icons for making changes, tracking files, and adding comments in either text or voice that will pop up when users point near the text. When an Office 97 Word or Excel file is opened, users will see who made changes to the file and when. A dialog box will offer the option of accepting or rejecting such changes. Files will be lockable so only workgroup users with a password will have editing privileges.

Outlook will allow users to create custom forms with interfaces that integrate information dragged and dropped from contact and calendar fields or Word and Excel files, and ActiveX objects, such as PowerPoint files and 3-D buttons, will further customize forms. Created forms will automate repetitive tasks, such as ordering supplies, or be used for interactive applications, such as discussion databases or e-mail surveys; more sophisticated applications will be possible by adding Visual Basic scripts to a form.

In the Internet space, Outlook can sort URLs by category. Users can use Internet Explorer inside an Outlook shell and vice versa.

"The biggest issue for corporations will be coming up with a strategy for which tools they want to use for what, and then training their users in those areas," Pinckney said.

Network-ready or bundled software

HP, NEC take alternate routes with desktops

By Carolyn A. April

WITH SEPARATE overtures to corporate multimedia seekers and small business users, Hewlett-Packard Co. and NEC Computer Systems Inc. each unveiled new families of PCs last week with built-in LAN connectivity and bundled business applications.

HP took the wraps off the multimedia-focused high-performance Vectra XM series and introduced a low-cost corporate line, the Vectra VL series. For its part, NEC stepped into a new arena, rolling out application-bundled PCs aimed at small businesses and sold through both reseller and retail channels.

HP's network-ready XM line comes standard with an eight-speed CD-ROM drive, built-in Ethernet on the motherboard, Desktop Management Interface-based management software, Matrox Graphics Inc's Millennium 64-bit 3-D graphics accelerator, dual-ported Windows RAM, integrated 16-bit audio, and Netscape Communications Corp.'s Navigator Web browser.



NEC WILL OFFER
Pentium Pro chips for its PowerMate and Ready Office lines.

The four XM models sport 133- to 200-MHz Pentium processors, 16MB of RAM, 1.28GB to 2.5GB hard drives, and 256KB of Level 2 cache. Available at the end of the month, they will be priced from $2,158 to $2,785.

The VL line is composed of 12 desktop or minitower models equipped with Pentium processors ranging from 100 to 200 MHz in speed. The models feature 256KB of Level 2 cache, a PCI bus master Enhanced IDE controller, 8MB to 16MB of RAM, and a 1.28GB to 2.5GB hard drive. Systems range in price from $1,319 to $2,779.

Both the XM and VL lines will be pre-loaded, for the first time, with Windows 95 and Windows for Workgroups 3.1 OSes.

NEC, which recently emerged with consumer PC giant Packard Bell-NEC, is banking on a growing market for computers among small business segments from one to 100 users. To that end, NEC is introducing the PowerMate Office line and the Ready Office line of minitower chassis PCs.

Essentially, the two PC lines are the same, just branded differently to reflect their sales channels: PowerMate Office will be sold through NEC's traditional VAR and reseller

▷ *HP, NEC page 40*

Verity suite widens search, index tools

■ Expanded Search'97 suite will ship in fourth quarter

By Chris Jones

VERITY INC. will broaden the reach of its information searching and indexing tools to hard drives, CD-ROMs, and other desktop resources when its Search'97 applications suite makes its debut later this year.

Announced last week, Search'97 is a suite of applications that uses filters to index corporate documents in more than 200 file formats that can be viewed in their native formats via standard Web browsers.

Verity's Information and Agent servers, which are included with the suite, are adjuncts to a Web server and manage the indexing and searching of the information catalogs. According to analysts, the addition of a local searching engine brings Verity one step closer to establishing a de facto standard.

"Each of them [search engine developers] has their own indexing format and searching algorithm, and Verity's goal is to make their indexing a standard, just like [Adobe Systems Inc.'s] PostScript," said Mike Gotta, an analyst with the Meta Group Inc., in Stamford, Conn. "This [Search'97] continues their strategy of getting their technology everywhere; now it's across the desktop file system."

Verity has undertaken an aggressive OEM strategy to make its search-and-retrieval technology a standard, and among the companies that have embedded Verity engines thus far are Adobe, Documentum Inc., IBM, Informix Software Inc., Lotus Development Corp., NEC Computer Systems Inc., Netscape Communications Corp., and Sybase Inc.

Companies can use the Search'97 suite to publish CD-ROMs with information that can be linked to Web sites, where users can submit natural language queries to access the files. Users also can design intelligent agents that search for new or updated information and notify users via e-mail or pager.

Search'97 will ship in the fourth quarter, but no pricing has been set.

Verity is located in Mountain View, Calif., and can be reached at (408) 541-1500.

InfoWorld Street Prices

Desktop systems

133-MHz Pentium system[1]	Hard drive	Low	High	Average	Change from August
AST Bravo MS P/133	1.2GB	$1,780	$2,249	$1,990	None
Compaq Deskpro 2000	1.2GB	$2,019	$2,215	$2,084	-6%
Dell OptiPlex G 5133	1.6GB	Direct price		$2,143	-5%
Gateway 2000 P5-133	1.6GB	Direct price		$1,893	-2%
HP Vectra XM4 P/133	1.2GB	$2,110	$2,465	$2,282	-1%
IBM PC 350	1.2GB	$2,240	$2,655	$2,425	+3%
NEC PowerMate P133	1.6GB	Direct price		$2,000	None
Clones/compatibles[2]	1.6GB	$1,246	$2,099	$1,636	-4%
PowerPC system[1]					
Apple Power Mac 7200/120	1.2GB	$1,649	$2,299	$1,980	+1%
Power Computing PowerWave 604/120	1GB	Direct price		$2,658	None

InfoWorld Street Prices are based on telephone surveys of resellers and on print advertising in computer publications and regional newspapers. Price information was collected between Sept. 1 and Sept. 7.

1. Pentium Systems include DOS, Windows, a keyboard, a mouse, 16MB of RAM, and a 15-inch color monitor. Dell Computer Corp. and Gateway 2000 Inc. systems include an eight-speed CD-ROM drive.

2. Clones and compatibles are systems with the same features as those listed by name, but they are not as widely available.

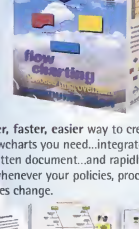
3. The Power Mac includes a 120-MHz PowerPC 601 microprocessor, and the PowerWave includes a 120-MHz PowerPC 604 microprocessor. Both PowerPC systems come with 16MB of RAM, System 7.5, a mouse, and a quad-speed CD-ROM drive but do not include a monitor. The PowerWave system includes a keyboard; the Power Mac does not.

Instantly Document Corporate Policies, Procedures and Work Instructions

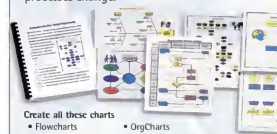
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Source: Qualitative Cost/Value Analysis of Client/Server Messaging, Creative Networks Inc. 5/23/96

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Source: Microsoft Website 8/12/96

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HP to meld printer management to intranets

By Tom Quinlan

A LAYER OF PRINTER administration that will allow network managers to view a company's printer resources over an intranet was introduced last week by Hewlett-Packard Co.

Tentatively known as JetAdmin for the intranet (the actual name and delivery dates have not been set) — the new technology seeks to meld HP's printer management technology with increasingly popular intranets, although in a limited fashion initially.

The technology will have the added benefits of offering remote administration and creating a resource map, said Randa Tang, a product manager for HP's Internet solutions operations, in Boise, Idaho.

Network administrators will also get a Web-based line to HP's technical support services via a hotlink, Tang said.

Although the server-based software will provide error messages and management capabilities over an intranet, the software does not totally replace HP's existing LAN-based technologies.

Printer configuration and installation still must be managed over the traditional network, and individual users will not be able to change a printer's setting or functionality over an intranet, Tang said.

Some of those features will be added to later versions of JetAdmin for the intranet, but right now, HP sees the intranet and traditional networks coexisting at corporate sites.

"The evidence is overwhelming that corporate users are moving to intranets because of the costs involved and the quick development time the [World Wide] Web offers," Tang said. "But we think they are moving to intranets cautiously."

JetAdmin for the intranet, which is scheduled to ship this fall, will be distributed free via HP's Web site, and it will be incorporated into future versions of JetAdmin.

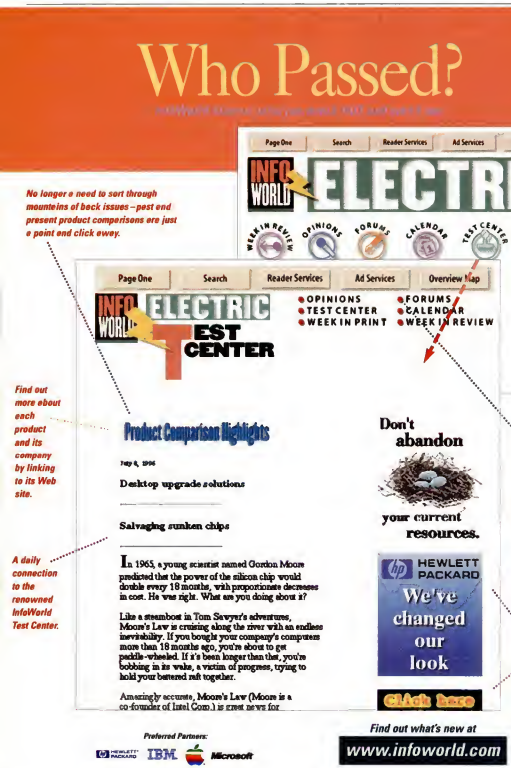
To operate, the software requires a JetDirect card located in the printer or in a system. The same is true for most versions of HP's JetAdmin technology.

HP does not usually require that the JetDirect hardware be present in NetWare environments, where the JetDirect technology is replaced by a NetWare Loadable Module. HP is working on an intranet version of JetAdmin for that environment, but that will also be included in a future release of the technology, Tang said.

Unlike some other Internet/intranet-based printer management technologies, such as Tektronix Inc.'s PhaserLink, HP's intranet technology is server-centric, with JetAdmin for the intranet acting as a proxy server in a Windows NT environment.

Recently Tektronix updated PhaserLink to provide live links to Web sites so that users can get updated information on the status of the printer constantly, a feature HP is also supporting with its technology.

HP has its headquarters in Palo Alto, Calif., and can be reached at http://www.hp.com.



HP, NEC

Continued from page 37

partners; Ready Office will be available through retail stores such as CompUSA.

Unlike PCs sold to large IS sites that are managed by an administrator, NEC's new line sports features demanded by small businesses that don't have IS departments. It includes a full suite of business applications, such as Microsoft Corp.'s Word, Excel, and Publisher 97; an integrated 33.6Kbps fax/modem; an Iomega Corp. Zip drive for extra storage; and American Power Conversion Corp.'s Back-UPS to protect against power surges.

Two of the four models in each line boast a Pentium Pro processor running at 180 MHz or 200 MHz. The other systems feature 133-MHz and 166-MHz Pentium processors, 16MB to 32MB of RAM, a 1.6GB to 2.5GB hard drive, and an eight-speed CD-ROM drive.

Available at month's end, the systems will range in price from $2,100 to $3,200.

HP, in Palo Alto, Calif., is at (800) 443-1254.

NEC, in Mountain View, Calif., can be reached at (800) 632-4636.

WINDOW MANAGER · BRIAN LIVINGSTON

Handling DLLs the Microsoft way: improperly

FOR THE PAST two weeks, I've described ways you can reduce the incidence of crashes (known as General Protection Faults) in your system by eliminating DLL (dynamic link library) conflicts. The basic idea is to search your hard drive(s) for *.DLL files, then make sure that the latest versions are in your Windows\System folder and in only your System folder.

There are exceptions, particularly for WINSOCK.DLL, which you should leave alone. Follow the directions in my past two columns before you experiment. You can get back issues containing those columns by contacting customer service at (847) 647-7925, or http://www.infoworld.com.

This week, I need to give you some information on a bizarre interaction that affects Microsoft Corp. applications.

Older versions of Microsoft Office and some other applications are picky about the DLL versions that they will support. According to Microsoft document No. Q111089, this problem affects the following products: Microsoft Office 4.0, 4.2, 4.2c, 4.3, 4.3c; Excel 5.0, 5.0c; Word 6.0, 6.0a, 6.0c; PowerPoint 4.0, 4.0c; Project 4.0; and Visual FoxPro 3.0.

You'll know you have a DLL conflict if you see the error message "Application Error, Call to Undefined Dynalink" while you are starting or running these applications. You may also see the longer message "The server application, source file, or item cannot be found. Make sure the application is properly installed and that it has not been deleted, moved, or renamed." Like many Microsoft error messages, these two are totally unhelpful to the average person. In the first place, what the heck is a dynalink? And the second message, of course, you get only when your applications *have been* correctly installed.

The problem is that Microsoft has released different versions of its shared DLLs, and it has released identical DLL versions that have different date stamps. When you install a new application that also uses one of these DLLs, it has the capability to install a version of a DLL that is older than the one the other applications support.

You would expect that installing an older version of a DLL would cause problems. The older version may not have a programming call that the newer version supports. (This is what an "undefined dynalink" means.) Installing a *newer* DLL, however, shouldn't cause any problems. But the Microsoft applications named above often will not run with a DLL that is newer than the version they support.

For example, the DLL called OLE2NLS.DLL used by the above-named Microsoft applications is Version 2.01. According to Michael Green, a senior network analyst for Paranet Inc., in Houston, who has tracked this particular DLL problem, Microsoft Office 4.3c *cannot* use OLE2NLS.DLL Version 2.02 — a DLL that Microsoft itself has developed.

Making matters worse, Microsoft has released Version 2.01 of this and several other DLLs in the different packages named above with no less than five different sizes and 14 different date stamps going as far back as Dec. 13, 1993. (To see the version number in Windows 95, right-click the DLL in the Explorer, then click Properties, Version.)

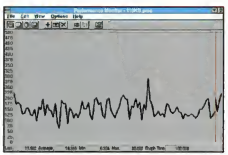
But wait, there's more! If Office Manager is running, and you install a new application, Windows won't install the updated DLLs that the application needs — and Windows will not give you any error message.

What's the answer? Maybe you could upgrade to Office 95, but that seems like overkill and isn't a guaranteed fix. Microsoft needs to build a solution so DLLs work — period.



Brian Livingston is co-author of Windows 95 Secrets *and author of three other Windows books (IDG Books). Send tips to brian_livingston@infoworld.com, or fax: (206) 282-1248.*

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Introducing the PowerEdge 2100: Redefining the entry-level server.

Investment Banks Jump On Public Offering Of Dell Servers

3 of 4 Top Firms Report Improved Network Performance

Wall Street may be feeling a bit queasy, but it's definitely a bull market for Dell.

The Austin, Texas-based computer maker has scored a bit hit among some of the largest investment banks with - of all things - its line of PowerEdge servers.

"It might seem surprising," said one source. "When people think of Dell, they think of desktops and portables. But Dell's adherence to open network standards makes their servers a natural on large corporate networks."

It also makes Dell unusual among its competitors, most of whom are only now beginning to abandon their proprietary standards in favor of a more open approach. "I don't want to name names, but companies like Co

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The following could be considered insider information. Run with it.

- Dell is ranked fifth in US server market share
- Dell servers are built in a dedicated ISO 9002 server factory
- Mission-critical server support is provided 7 x 24
- 5 of the top 6 software makers buy Dell servers
- 5 of the 6 largest automobile makers buy Dell
- 4 of the 5 largest mutual insurance companies buy Dell
- 5 of the Big Six accounting firms buy Dell
- 92% of Dell's $5.8 billion revenues come from businesses and government agencies



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— Computer Reseller News

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ANNOUNCED

Tandem Computers Inc. last week licensed Informix Software Inc.'s DataBlade application programming interface for use in its new ServerWare SQL database software. The software will run on Tandem's Himalaya and Windows NT servers and will ship next fall. Tandem will also license and resell Informix's Illustra and Universal Server database applications on its servers. (800) 482-6336.

ADVANCED MODULAR SOLUTIONS INC. announced its Scalable ServerArray System, a rack-mounted server with four Pentium modules, 1MB of cache, and 256MB of Extended Data Out RAM. An intranet bundle includes an Ethernet hub and storage array. An Internet bundle with a Commray subsystem for modem connectivity will ship by year's end. Without expansion cards, hard drives, or floppy drives, a single 166-MHz Pentium module is priced at $2,900. (800) 266-3852.

HITACHI COMPUTER PRODUCTS INC. last week unveiled a parallel database server that runs the Hitachi Object Relational Database System, which is designed for high-end data-mining applications. Hitachi will ship systems mid-1997. (408) 492-9070.

PEOPLESOFT INC. this month acquired Red Pepper Software Co. in a stock transaction valued at approximately $225 million. Red Pepper develops the ResponseAgents manufacturing and scheduling software in PeopleSoft applications. (510) 225-3000.

SHIPPING

8LUE LANCE INC. is shipping a Windows-based version of its network security tool for NetWare, LT Auditor+ 5.0, priced at $995 per server. The network-monitoring product features the capability to consolidate audit logs from multiple servers to increase network security and adds support for Novell Directory Services. (800) 856-2583; http://www.bluelance.com.

IBM big iron gains power, adds Web links

■ S/390 doubles capacity, adds Java support to compete with NT and Unix

By Ed Scannell

IBM KICKED OFF a two-pronged S/390 mainframe strategy last week, releasing a high-end line aimed at corporate accounts craving heavy-duty transaction-processing power, and a low-end line that offers an alternative to Windows NT and Unix-based servers.

The company also rolled out Release 2 of its OS/390 mainframe operating system, which features improved speed, manageability, and availability, as well as broader support for Unix applications.

The upgrade includes the OS/390 Internet BonusPak II, which has secure Web browsers, as well as a way to help users set up and deploy their existing applications with security over the Internet.

IBM also said last week it will release to beta testers in the fourth quarter a version of Java for the OS/390, which will allow S/390 users to build cross-platform applications for the Internet with Java.

The 13 models of the high-end line, S/390 Parallel Enterprise Server Generation 3, are based on the third generation of the company's S/390 CMOS chip technology. IBM has doubled the system's capacity and says it has doubled overall performance compared with its predecessors.

"The S/390 Generation 3 servers have gone past our expectations for batch processing by 10 percent, which gives us more recovery time to better service users," said Renato Cocetti, a corporate vice president with Automatic Data Processing Inc., in Roseland, N.J.

The low-end series, called the S/390 Multiprise servers, is being

▶ IBM page 47

Pieces of the puzzle

IBM products link the S/390 to the enterprise

- The IBM Intelligent Miner for OS/390, *a data-mining tool, analyzes large amounts of data to discover patterns and trends.*
- The Internet Connection Secure Server for OS/390 *transfers confidential information over the Internet for free.*
- Internet "gateways" *integrate OCS-, MOSeries-, DB2-, and IMS-based transactions and data with the Internet.*

Cognos, Jyacc venture into three tiers

By Ted Smalley Bowen

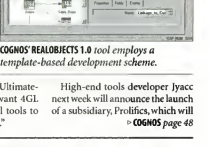
AS MULTITIER client/server applications with Web components proliferate, Cognos Corp. and Jyacc Inc. are the latest tools vendors rushing to introduce easy-to-use graphical development environments capable of generating distributed, transaction-based applications.

Cognos this week will deliver RealObjects 1.0, which provides a template-based graphical development environment that allows developers to assemble database-aware applications.

The tool has modules for managing transactions and business rules and wizards to integrate RealObject applications with the company's PowerPlay online analytical processing and Impromptu reporting tools. The $4,995 Cognos tool runs on Windows 95 and Windows NT.

Cognos' RealObjects could tap into the increasing demand for readily usable tools for creating application servers, analysts said.

"Right now, there aren't a lot of people doing three-tier development, and if they are, they're left choosing between high-end tools like Forte and Dynasty, or C++, and this stuff is hard," said John Rymer, an analyst at Giga Information Group, in Cambridge, Mass. "That model is not sustainable over time. Not too many people can develop with those tools. Ultimately, people are going to want 4GL [fourth generation]-level tools to create application servers."



COGNOS' REALOBJECTS 1.0 *tool employs a template-based development scheme.*

High-end tools developer Jyacc next week will announce the launch of a subsidiary, Prolifics, which will

▶ COGNOS page 48

THE BUG REPORT

Server bugs and fixes reported to BugNet

Lotus Notes If you double-click on a Lotus Notes 3 or 3.0a database icon, you may receive, "Server error #40:06." The problem may be that your Name and Address Book is corrupted in Sserver access view. The work-around: Run SUPDALL names.nsf -R. According to Lotus Development Corp., "This error code is beyond the listing for Notes, Version 3, error codes."

Windows NT When you try to boot Windows NT on a system with IBM OS/2, Version 2.x, you may receive, "Windows NT could not start because the following file is missing or corrupt:—<nt>:\SYSTEM32\ NTOSKRNL.EXE." The workaround: 1. Remove the Read Only and System File attributes from the BOOT.INI file by typing the following at the MS-DOS or OS/2 command line: ATTRIB -S -R C:\BOOT.INI. 2. Edit the BOOT.INI file and change the partition number for Windows NT. Change the Windows NT line to the following: multi(0)disk(0)rdisk(0)partition(2)\winnt= "Windows NT on D:" where 2 is the partition number where Windows NT is located.

Windows NT If you attempt to use the Novell Attach command to attach to a Novell NetWare server when running under Windows NT 3.51, you may not be able to unmap any drives or detach from the Novell server. The problem is that Novell's Attach command is not supported in Windows NT. Microsoft Corp. recommends "making connections to Novell servers in File Manager or use the NET.EXE utility in Windows NT."

For more bug reports, browse to http://www.bugnet.com, *or send e-mail to* bugnet@bugnet.com.

Windows NT Distributed File System may ship this fall

MICROSOFT CORP. last week began beta testing Windows NT Distributed File System (DFS) and may ship it this fall, ahead of schedule, according to Microsoft sources.

The file system presents files in a single, logical volume on the network so users don't need to identify the server where a file resides, a Microsoft official said. This feature, considered a major advancement in network-based file systems, has been slated as part of the Cairo version of NT expected in 1997.

Only NT and Windows 95 clients will be able to see DFS file shares and transparently access files across different systems, said Dwight Krossa, Microsoft product manager for desktop and business systems, in Redmond, Wash.

The ship date will be determined by user feedback on the beta version.

One early user said DFS allows linking of file systems.

"I can now manage the PC servers the same way I manage the Unix servers," said Robert Hawley, project leader for PC products at Network Appliance Inc., in Mountain View, Calif.

By releasing DFS this year, Microsoft would beat Novell Inc.'s Advanced File System to market. Based on a similar single network file system concept, the Novell technology is due in 1997. However, Novell may accelerate its rollout, said Joseph Marengi, Novell's president.

— Paul Krill

ISV report says NT OSes have few differences

By Paul Krill

MICROSOFT CORP.'s Windows NT Workstation and NT Server operating systems are essentially the same product, despite an $810 price difference, according to an ISV report flatly rejected by Microsoft officials.

An official at Web server software vendor O'Reilly & Associates Inc., in Sebastopol, Calif., said only two registry changes are needed to turn NT Workstation into NT Server, and the two products have identical kernels. NT Server costs $1,129 for a version supporting 10 clients, and NT Workstation costs $319.

"Our whole point is we think Microsoft is being extremely dishonest by saying there are these huge differences between NT Server and NT Workstation," said Andrew Schulman, senior editor at O'Reilly.

The company was recently embroiled in a dispute over Microsoft's plan to limit TCP/IP connections to NT Workstation, thus restricting its viability as a Web server platform.

A Microsoft official said the two NT products' kernels are very similar but that the two packages are substantially different.

For instance, NT Workstation supports two-processor multiprocessing as opposed to four in NT Server. Moreover, NT Server can act as a domain controller to house network-directory information, which NT Workstation cannot, said Jonathan Roberts, director of product marketing in Microsoft's Desktop and Business Systems Division, in Redmond, Wash.

NT Server also offers features such as the Internet Information Explorer, which is not included in NT Workstation.

Additionally, NT Server is tuned as a server operating system with longer CPU process times than NT Workstation, according to Microsoft.

DIGITAL LOWERS ITS COST OF ENTRY FOR ALPHA SERVERS

By Judy DeMocker

DIGITAL EQUIPMENT CORP. is redesigning its Alpha line in an attempt to lower the cost of entry for the company's 64-bit servers, while still giving users headroom to grow into a quad-processor system.

Digital's AlphaServer 4000 is a lightweight version of its midrange 4100 system. The AlphaServer 4000 5/300 and 5/400 offer single and dual CPU systems with about half the memory and two-thirds the price of the 4100 but are fully upgradable to the more expensive models, the company said.

The 5/300 is priced at $34,500 for an entry-level configuration that includes a single 300-MHz Alpha 21164 processor, 128MB of RAM, a 4.3GB hard disk, and the Windows NT operating system. The 400-MHz AlphaServer is priced at $44,500. Both models are shipping now.

Both systems will have a 4.3GB Fast Wide SCSI-2 hard disk, 64-bit dual channel PCI, eight slots, and a 128-bit system bus.

Both can be clustered with other AlphaServers using OpenVMS, Unix TruCluster, or Windows NT clustering technologies, company officials said. These clustering options are sold separately.

Upgrades to the 4100 line are priced at $22,500 and include four processors and 4GB of memory. A processor upgrade to 400 MHz costs $10,000.

Digital is also ramping up its 4100 series with support for 8GB of memory, due in November.

Also in the works is a 500-MHz processor and a new processor design that will appear in products by mid-1997, officials said. The redesign is based on an update to Digital's EV 5 technology, called EV 6, that processes four floating-point and two integer calculations per clock cycle.

Digital, located in Maynard, Mass., can be reached at (800) 344-4828 or http://www.digital.com.



Apple tends to corporate market with server offerings

By Tom Quinlan

APPLE COMPUTER INC. moved to strengthen its server offerings last week with upgrades to its Unix-based Network Server and Mac-OS-based WorkGroup Server lines.

The server upgrades coincide with other Apple initiatives to bolster its corporate offerings. Apple demonstrated its first symmetrical multiprocessing (SMP) system, running under IBM's AIX implementation of Unix, at the Seybold show in San Francisco last week and announced that its Unix server is certified for use with Oracle Corp.'s Universal Server database.

The first SMP-based system, which will support two 200-MHz 604e processors with 1MB of Level 2 cache per processor, will ship in early 1997.

In the meantime, Apple has added the 200-MHz PowerPC 604e to both of its server lines: the AIX-based Network Server and the Mac-OS-based WorkGroup Server.

The AIX-based Network Server 700/200 now sports the 200-MHz processor, 48MB of RAM, two 4GB hard drives, and an eight-speed CD-ROM drive. In addition, Apple has enhanced the system to accommodate 9GB hard drives as an option. The systems will ship in October, with prices starting at $16,129.

Apple's WorkGroup Server 8550/200, using the MacOS and equipped with a 200-MHz processor, 32MB of RAM, and an upgraded 2GB hard drive, will be priced at $5,799. It will ship later this month.

Apple has promised to support SMP within the Copland System 8.0 environment, although no time frame has been set.

Although the announcements last week represented incremental enhancements rather than revolutionary new technology, some observers said Apple intends to take advantage of the Internet to relaunch itself into corporate markets next year with an added emphasis on server technology, rather than relying on its desktop offerings as it usually does.

"Apple succeeded at the Internet level before it even knew what was happening," said Richard Doherty, founder of the Seaford N.Y.-based market research company Envisioneering Inc. "Now it has a chance to take advantage of its accidental success with real products."

With the Internet and intranets offering corporate customers a virtually platform-independent environment based on broad industry standards for file formats, access, connectivity, and development environments, users are much less tied to specific operating systems than they were previously, Doherty said.

"There's going to be an increased emphasis on ease of use and the richness of content, and Apple is still better than Microsoft [Corp.] at that," Doherty added.

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IBM

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positioned to fend off the increasingly aggressive advances of various NT and Unix-based servers.

At least one user believes these servers are competitive.

"We estimate that availability and customer-service response times will improve by up to 60 percent," said Ed Eckberg, senior vice president with Keystone Financial Services, in Bellwood, Pa.

An important piece of IBM's strategy at the high end is its Parallel Sysplex architecture, which permits as many as 32 separate S/390 servers to be linked and to function as a single system.

The enhanced architecture includes the S/390 Coupling Facility and the Sysplex Timer to ease installation and improve the continuous availability and systems management from remote locations.

A standard feature on both series of systems is the Open Systems Adapter 2, which provides a direct connection to Ethernet, Token Ring, and Asynchronous Transfer Mode local area networks from an S/390 server.

HP cranks up midrange, simplifies low end

By Jaly DeMocker

HEWLETT-PACKARD CO. is playing to both sides of the house with 64-bit upgrades to its PA-RISC–based servers as well as enhancements to the ease of use of its Intel-based NetServer line.

The long-anticipated revving of HP's D-, K-, and T-class HP 9000 servers to the 64-bit PA-8000 chip, shipping now, coincides with a new version of the HP-UX operating system. HP-UX 10.20 supports 64-bit processing for file sizes as large as 128GB, officials said.

"The K series is a wolf in sheep's clothing," said Andrew Allison, editor of *Inside the New Computer Industry*, in Carmel, Calif. "It's a midrange server with high-end performance."

These systems will also support a chip upgrade to the Merced chip, which will run both HP-UX and Windows applications.

The K250, K260, K450, and K460 models of the RISC-based servers are also shipping now,



HP IS NOW SHIPPING *its 9000 K-class server.*

at prices ranging from $52,200 to $77,200. The D270 and D370, which support one or two PA-8000 processors, will ship in October priced at $22,260 and $25,250, respectively. At the high end, upgrades to the T-class T600 will ship in the first quarter of 1997.

Although the new iteration of the operating system takes advantage of the higher clock speeds of the PA-8000, some users have run into snags along the upgrade path.

"It's more effective and flexible, with better throughput, but it may not always work with older software that expects I/O to work in a certain way," said John Armstrong, systems manager at Electronic Data Systems Corp., on-site at GMAC Mortgage, in Horsham, Pa.

On the low end of its server offerings, HP has a new Pentium-based NetServer E, the first in a series of simplified file and printer servers that are bundled with software aimed at easing installation, administration, and backup.

HP's low-end servers are competitively priced, but there are OS problems, said Stuart Gibbs, a research analyst for NT server at D.H. Brown and Associates, in Port Chester, N.Y.

The E30 will ship Oct. 1, with prices starting at $2,400 for a 130-MHz Pentium processor and 2GB of storage. Pentium Pro–based systems, which will run SCO Unix, will ship in early 1997 for less than $4,000.

HP, in Cupertino, Calif., can be reached at http://www.hp.com.



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Cognos

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concentrate on three-tier, Web-based development tools. The company's namesake product, slated to ship this month, will consist of a visual-development front end and JetNet, a customized version of BEA Systems Inc.'s Tuxedo transaction-processing monitor software. Optional components will provide Web scripting, HTML generation, extended browser controls, and JavaScript support.

Prolifics applications will run on Unix and NT servers and Windows, Motif, Macintosh, and Web browser clients. A five-user development configuration will start at $35,000.

Cognos, in Burlington, Mass., is at (617) 229-6600 or http://www.cognos.com. Jyacc's Prolifics subsidiary, in New York, is at (212) 267-7722 or http://www.prolifics.com.

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HELP DESK · BRETT GLASS

How to get BOOTP and RARP on Win95; no easy uninstalls

We access the Internet via a nearby university. The university's server informs workstations of their IP addresses via the Reverse Address Recognition Protocol (RARP). But since it was upgraded to Windows 95, my workstation has not been able to use the network because Win95 does not support RARP. What is the best solution to this problem? At present, I've been using a PPP connection, which is much slower.

V. Balaraman



Over time, three standard protocols have been developed to allow workstations to obtain their IP addresses from a server. RARP, the most primitive, will not work through a router and, therefore, requires a server on every LAN segment. Boot Protocol (BOOTP), commonly used on Sun and other Unix workstations, can be routed among LANs so that one server can handle an entire enterprise. The most recent, Dynamic Host Configuration Protocol (DHCP), is also routable and has features that let computers "roam" and receive temporary IP addresses from a common pool. BOOTP and DHCP are very much alike, but BOOTP has been around for a long time and is quite stable, whereas DHCP still has some compatibility problems.

You can connect to the Internet via a dial-up Point to Point Protocol (PPP) connection because PPP has built-in provisions to supply a calling system with an IP address. According to Microsoft Corp., neither Win95 nor Windows NT supports RARP or BOOTP; both support only DHCP, even though BOOTP support would be easy to add.

Microsoft did not return my phone calls asking how to solve your problem. However, I've found work-arounds for both Win95 and NT. The "brute force" answer is to configure your workstation's IP address statically, bypassing BOOTP altogether. But this can cause administrative problems if addresses must be reassigned.

So a better solution is to use the program billgPC, available at http://user.interactive.net/~perin. This utility adds BOOTP capability to Win95. (You can also buy one of the many replacement TCP/IP stacks for Win95, most of which support RARP and BOOTP.) If you need an NT machine to be a BOOTP server, you can get add-on software from Weird Solutions Inc. at http://www.mhi.se. Some third-party NT stacks support RARP.

For more information on DHCP (and a wealth of references to related standards and products), see John Wobus' comprehensive FAQ (frequently asked questions) at http://web.syr.edu/~jmwobus/comfaqs/dhcp.faq.html.

I have a Windows 3.1 PC that's configured just the way I like it, with all of my favorite applications. I'm about to buy a new PC that will run either Windows 95 or Windows NT. I don't have a lot of the original diskettes for my applications. How do I get them over to my new PC?

Brian Jaffe

Unfortunately, Windows applications spread themselves far and wide throughout your system, changing parts of many files (such as WIN.INI and SYSTEM.INI) and placing others in many different directories. Uninstalling them is hard enough; migrating them to a new system can be nearly impossible.

Misplacing diskettes makes for even more trouble, because many software vendors will give you a hard time if you need replacement media. In the future, one can only hope that Windows will become more like Unix, for which installing an application is often as simple as putting a file in the right directory (or, occasionally, running a shell script, a make-file, or a package installer).

Brett Glass' Help Desk answers business computing questions. To submit a query, call (800) 227-8365, Ext. 702, or send e-mail to brett_glass@infoworld.com. Visit his forum on InfoWorld Electric at http://www.infoworld.com.



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INTERNET

ANNOUNCED

Netscape Communications Corp. released its AppFoundry program on Sept. 9, making available 19 reusable business application templates for intranet developers. (See "Netscape applets aimed at wooing ISVs," Aug. 26, page 1.) AppFoundry (previously code-named Appalanche) templates are available on Netscape's Web site at http://www.netscape.com.

FIRSTFLOOR INC. announced the availability of InfoPilot 1.0, which streamlines the management, sharing, and distribution of data across a multiplatform network. A Windows 95 administrative client is provided with client versions for Macintosh, Windows 3.1, and Win95. InfoPilot server runs on Solaris 2.5 or Windows NT 3.5. It costs $750 for 10 clients, server, and administration tools until Nov. 1. Regular pricing is $3,375 for server, tools, and 25 clients. (415) 968-1101; http://www.firstfloor.com.

CYBERGUARD CORP. will announce this week that Firewall 3.0 for Intel will be included in its SafeNet/Enterprise virtual private networking solution by the fourth quarter. SafeNet is designed for secure business transactions on the Internet. The SafeNet/Enterprise Starter Kit costs $18,995, the SafeNet/Firewall is priced at $13,995, and the SafeNet/LAN is priced at $4,995. (800) 344-4297; http://www.cyberguard corp.com.

DIGITAL DIRECTORY ASSISTANCE INC. announced last week its PhoneDisc Intranet Server, a new intranet Web server interface to its PhoneDisc database of more than 114 million business and residential telephone listings. The server can reside on any 32-bit Microsoft OS, so users can search the database by name, business type, address, or phone number. The server is free with any PhoneDisc network product. (800) 284-8353; http://www.dda-inc.com.

Web war winner: CORBA, or DCOM by default?

■ The long path to CORBA interoperability could boost Microsoft's DCOM

By Jim Balderston

AS ORGANIZATIONS build intranets based on Internet standards and protocols, many are looking to the component-based object software models of the future to make their networks simpler to manage and cheaper to run.

TECH UPDATE

The key to these component-based software models is interoperability. So far object technology vendors that comply with the CORBA standard, from the Object Management Group (OMG), have enjoyed an 18-month to two-year development head start over Microsoft Corp.'s rival Distributed Component Object Model (DCOM) technology.

The 600-company OMG consortium has established a number of high-level protocol standards giving object technology vendors rough guidelines that have helped companies such as Next Computer Inc., SunSoft Inc., and Netscape Communications Corp. to push forward CORBA-compliant distributed computing technology.

However, some analysts say this lead could melt away if the CORBA-compliant object technology vendors cannot work out lower-level interoperability for their software. This means that Microsoft could win the object wars by default.

"OMG needs to focus more on establishing protocols and stop focusing on portability," said John Rymer, object technology analyst at Santa Clara, Calif.-based Giga Information Group. "Vendors are running around trying to establish protocols instead of providing services. It's ludicrous. The vendors are not solving user problems."

"If the ultimate goal is to build business applications, there has to be a common framework that defines the scope of each component," said Mike Kennedy, an industry analyst at Cambridge, Mass.-based Meta Group Inc. "There has to be an application-level interface that allows two components to exchange the necessary information."

Kennedy said the loosely defined CORBA specifications are creating an environment that could destroy any real interoperability.

"Companies are creating their own frameworks and their own APIs and are hoping they will interoperate in the future with other object technologies," Kennedy said. "If I have an invoice component that totals billing information, and I want it to talk to another company's

▹ CORBA VS. DCOM *page 56*

HOTSEAT

Narrowcast News

Keeping an intranet fresh may involve a lot more than just the right technology

ROBERT MAY is the Chairman and CEO of San Francisco-based Ikonic Interactive Inc., which designs large Internet sites for companies such as Microsoft Corp., Pacific Bell, and Virgin Records America Inc. He spoke to Michael Parsons, Internet and Networking editor at *InfoWorld*, about the "dirty fact" of intranets.



JON SWINDELLS

You have a background in TV news. What does TV production teach us about running a Web site?

In television, you have a large group of people working all day to produce 30 minutes of content. They can do it because they know how to do it: They have policies and procedures in place. That kind of policy and procedure is sorely lacking today. The need for content coordination, policies, and procedures is something that we see time and again.

We've held classes for dozens of content providers. We create books of procedures for them: Here's the file type, here's the directory you put it in, and here's the person who authorizes the procedures.

How does the 'narrowcasting' that the Internet provides affect corporate marketing strategies?

The idea is that what you want to do is provide everything that an individual consumer wants. So if I'm your brand and you want something I don't have, then my responsibility is to find it and give it to you. I become your brand broker.

What we find intriguing is that our customers, who tend to be very large global companies, see what a threat to their brands this kind of distributed personal media represents. What they're attempting to do, and I think they'll be very successful at this, is to shatter their brand into pieces. If you think of the brand as a mirror, they want to shatter the brand and give each individual a shard of that mirror that perfectly reflects itself. So this kind of solution requires interactivity. This is where we see a lot of our time being spent.

How successful do you think electronic commerce will be?

The successes will be in localized areas that evoke a high degree of passion. To take this and try to transplant it to your local gas station — no. I think that clothing, for example, is very difficult to do in the near term. If you look at the international permeability of the Internet and what that does to brands, it's interesting. If you were a large manufacturer whose brands were being pirated overseas for a fraction of the amount they were being sold for here, and you started looking at selling those same things over the Internet, you'd start looking at the

▹ IKONIC *page 56*

THE WEB HOTLIST

Web sites worth checking out

1. **SAS Institute Inc.** http://www.sas.com
 Integrated software vendor SAS Institute Inc. delivers information on its expansive range of enterprise products. The Technology Solutions for IS Professionals section contains a useful white paper on data warehousing.
2. **Crystal** http://www.crystal.com
 Mixed-signal systems solutions are the focus of Crystal Semiconductor Corp.'s site. Get detailed technical documentation on Crystal's Ethernet, LAN, and data acquisition products in Adobe Systems Inc.'s Acrobat portable document format.
3. **Dynamo** http://www.atg-dynamo.com
 Software developer Art Technology Group Inc. presents Dynamo, an Internet application engine based on Java. The Developer area includes online demonstrations and examples of how Dynamo can enhance existing Web pages.
4. **E.support** http://www.esupport.com
 The Software Support Professional Association and TouchStone Software Corp. combine to offer E.support, an electronic-based support system. Learn about the corporate version of E.support, which allows automated diagnostic reporting.
5. **Inference** http://www.Inference.com
 Software publisher Inference Corp. features information on its strategic knowledge publishing, knowledge distribution, and content management offerings. Access Infind, a parallel search engine that clusters results into logical categories.

Send URL suggestions to james_battey@Infoworld.com

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Continued from page 53

price differential that you're making in your foreign markets, on the basis of that lack of permeability. Where there are international retail wars, then the Internet poses very significant threats. These threats make large retailers and large successful organizations very reticent to engage in this business. Does Levi Strauss & Co. worry about what The Gap does? You bet. Somebody is going to do it. If it's not Levi's or The Gap, then it's going to be some guy in a garage who decides that he's going to sell blue jeans to the Czech Republic over the Internet.

If you're the CIO of a Fortune 500 company and you have a small Web site, what should you do?

If we assume that the audience here is an internal audience and the objective is to share information about the company, which is sort of the traditional intranet challenge, you also need to think about who you're marketing to, internally as well as externally. The CIO needs a healthy respect for the challenge that serving relevant content represents. The dirty fact is there are no tools out there. That's why we've written our content-management application, RingMaster. There are no tools out there today to coordinate content across the enterprise. So if one needs to address a need and one needs to keep one's job, then one has the responsibility to tread very carefully, because the promise of the intranet is very different from what can actually be achieved.

A successful intranet installation that serves relevant content requires a large number of people who are very curious beasts to a normal CIO. I don't mean to disparage the CIO, but my belief is that CIOs are comfortable with equipment and with machines, and yet to create relevant content they're going to need to interface with marketing — those people that interface with people. The terrible intersection there is like the two soap bubbles that balance or merge, and it's the soap bubble of the technologist who is responsible for managing of technology, and the soap bubble of the marketing individual's responsibility to share and communicate the message. That's a very, very difficult challenge to manage. At the end of the day, we ask who has got the ball. Is it marcom [marketing and communications], is it HR [human resources], or is it the CIO?

There is a fundamental responsibility for the CIO to manage the technology; a fundamental responsibility for marcom to manage the external message; a fundamental responsibility for HR to manage the internal message. All of these things need to be arbitrated. You've got something like American Express with 70,000 employees worldwide and only 24,000 of them are located in the United States. So it's difficult. ... That's the biggest challenge — how do you coordinate information? The problem for a CIO is that it's kind of like trying to cross a frozen river in early April. Everything looks inviting, but there are some dangerous steps along the way, and you have to get across the river.

CORBA vs. DCOM

Continued from page 53

component that handles the printing function, they have to be able to pass the appropriate information to each other."

Christina Jette, the newly named vice president of tools for enterprise application development for Mountain View, Calif.-based Neuron Data Inc., said the risk of CORBA fragmentation could give Microsoft an opening that will leave enterprise users with only one option: DCOM.

"If you follow Microsoft, you know that once they decide to go down a path — watch out," Jette said.

The OMG can only define rough frameworks, said a representative of a large financial institution that runs mission-critical operations on distributed object technology, who requested anonymity.

"It is going to be up to [each] company to decide whether they are going to cooperate or try to dominate," the representative said. "If every company tries to establish its technology as the standard, everyone loses."

However, the shadow of Microsoft's dominance could force CORBA companies to make the decision to cooperate.

"I think the object companies will come together, because I have seen it happen before, especially when confronted with Microsoft," the representative added.

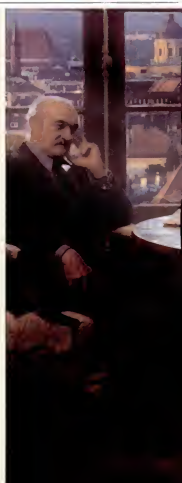
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Whistle to release self-configuring Internet server bundle

WHISTLE COMMUNICATIONS Corp. is launching a plug-and-play network server designed to help small businesses connect their LANs to the Internet with a minimum of hassle.

Whistle's InterJet is a self-configuring Internet server that sits on an existing LAN.

Whistle Communications, in Foster City, Calif., has established agreements with national Internet service providers (ISPs) Netcom On-Line Communications Inc. and PSINet Inc. designed to make Internet connectivity simple for small businesses.

Users will call the ISP and select their service options. The ISP will fax them a confirmation number and ship them an InterJet 486 PC server overnight. Then the user simply has to plug in the InterJet, connect it to the LAN and a phone, and enter phone and confirmation numbers once. Participating ISPs will invisibly configure the connection and hook up the relevant customer services. InterJet will then Internet-enable the LAN.

"Being a system administrator, when they said, 'plug and play,' I said, 'Yeah, right,' but they were pretty accurate," said Patrick Wheaton, of Progress Investments, a San Francisco-based investment management company. "I don't think anything can beat it as far as how easy it is to set up."

The InterJet offers firewall security, global and local e-mail, Web access, Web publishing, and network administration.



THE INTERJET *provides a complete Internet server — users simply buy and browse.*

Whistle InterJet costs $1,995 and will be available in October with purchase and lease options through Netcom and PSINet. Whistle is at (415) 577-7000 or http://www.whistle.com.

— Jeff Walsh

NETCARTA TO LAUNCH WEBMAPPER UPGRADE

NETCARTA CORP. WILL announce this week an application that will enable users to manage the content and structure of Web sites across multiple platforms.

The company's WebMapper 1.1 content manager software for Unix Web servers will be exhibited at this week's NetWorld+Interop trade show in Atlanta.

The software is designed for use at large corporate sites that carry Internet traffic across multiple platforms. It provides content management, analysis, and reporting capabilities on Unix servers and supports Windows 95 and NT as well.

Version 1.1 has enhanced analysis and reporting capabilities, along with a graphical HTML interface and a command-line utility.

The application creates a WebMap of a site that acts as a catalog of the site's resources, and it generates HTML-formatted reports detailing the site's size and its incoming and outgoing links and highlighting any problem areas.

The WebMap technology allows network managers or Webmasters to view site structures and relationships among Web objects. It is available now and costs $999.

NetCarta can be reached in Scotts Valley, Calif., at (408) 461-8271 or http://www.netcarta.com.

— Luc Hatlestad

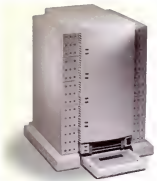


To find out more about the International Modem Travel Kit or any of our PC Card Modems and Ethernet+Modems give us a call today at 1-800-438-4526 or check out our Web site at www.xircom.com/288h. Because convincing people you understand business overseas is difficult if you can't even get your modem to work. No matter how good your hair looks.

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FROM THE ETHER · BOB METCALFE

Use an alias to find other aliases who share your taste in music or software

FIREFLY NETWORK INC., in Cambridge, Mass., is getting ready to follow you around the Internet collecting databases of your personal preferences. Participating Web sites would download your profile from Firefly when you arrive, collect more data on you in local databases as your sessions progress, and update your profile at Firefly when you leave.



Using local databases and your central profile of personal preferences, Firefly and its partners would influence what Web content you get to see. They would invite people like you to be in touch. They would sell advertising targeted to your profile. They would analyze your preferences for marketers.

Sound exciting? I signed up last March. So what are you waiting for? Well, you don't have to be a privacy paranoid to think twice about Firefly. But I'd like to turn you on to Firefly.

You may recall reading about the Firefly Network back when the MIT Media Lab spin-off was called Agents Inc. (See "From dating to voting, collaborative filtering will make our choices easier," March 18, page 52.) What I missed, as Firefly's Yezdi Lashkari pointed out to me when I visited recently, is the power of collaborative filtering in building communities.

Anonymity has important uses, and the option must be preserved, but there are many situations in which people need to insist that you identify yourself. What Firefly teaches is that there are situations in which it is in your direct interest to not be completely anonymous.

When you register at http://www.firefly.com or at a participating Firefly site, such as http://my.yahoo.com (try it), you do so with an alias and a password. The alias can be anything you want so long as it is not already taken. Having nothing to be ashamed of, I chose my name, but most people don't.

Firefly collects data on your personal preferences. This data need never be associated with you, just your alias. Under your Firefly alias — and you can have as many as you want — you get the benefits of Web sites' knowing a little about you when you show up. This gets you what many of us want: personal service.



Most of what Firefly collects under the profile associated with your alias is a database of opinions you've expressed on various items and actions you've taken. This database enables Firefly to make recommendations on the collected preferences of people who have tended to evaluate similar items as you do.

Lashkari points out that collaborative filtering data can be used not only to guide you toward products you're looking for but also to guide you toward people. He calls it navigating communities.

Firefly will give you the aliases of willing Firefly users who share your tastes on chosen items. Firefly maintains Web pages and mailboxes for aliases so you can find out more — as much as they want to tell you — about people with whom you share interests.

Firefly notifies you of important events within your various communities — such as when a new music review is written for your favorite group or when one of your new buddies is online so you can chat.

Firefly aspires to be a trusted intermediary with your personal data. Its processes are audited by Coopers & Lybrand LLP.

Firefly has partnerships with *Rolling Stone* to help Firefly users find music, with Yahoo to find Web sites, with Reuters to find news, and with the Ziff-Davis Network to find software. Firefly will add travel, financial services, books, and restaurants.

Learn more about Firefly at http://www.firefly.net. The service, http://www.firefly.com, has more than 250,000 users. When I go there I'm typically among 400 users. How about joining us? Please do, especially if you — like me — are a big fan of The Shirelles.

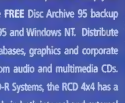
Bob Metcalfe invented Ethernet in 1973 and founded 3Com Corp. in 1979. He receives e-mail at bob_metcalfe@infoworld.com.

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THIS WEEK

- AlphaConnect Pro 1.1 IW/2
- Level 5 Quest Server 2.0 IW/4
- Parts for Java 1.0 IW/6
- Masque 2.4 IW/6
- Inside the Firewall *by Dave Taylor* IW/8

FREE ADVICE

This week, groupware and intranet consultants Ken Lownie and Tom Varney, of Connexus Consulting Group Inc., are our guest columnists. (See Charlotte's Web, right.) Connexus recently visited *InfoWorld* to help assess our intranet needs. Their recommendations might surprise you — and they might just apply to your company, too.

WEB SIGHTINGS

Intranet Design Magazine, at http://www.innergy.com/index.html, is an interesting biweekly mix of in-depth features and short opinion pieces. It's good background reading for intranet developers, tackling issues such as Java vs. C++ and an overview of the Lightweight Directory Access Protocol.

The Intranet Journal, at http://www.brill.com/intranet/, is another good source of intranet-related news, advice, and interviews. It's not as technically oriented as Intranet Design Magazine, but it does offer a rich collection of HTML design resources and a useful (if small) library of intranet software.

HOW WE REVIEW

Intranet World reviews examine new products, focusing on their usability, features, and suitability to task. Our expert reviewers rate shipping products on a scale of cold to hot. The authors do not employ the extensive analyses used in Product Comparisons, so their conclusions may be different.

TALK BACK

We welcome your comments on the Intranet World section and the products we evaluate. Please send your questions, comments, or kudos to Dylan Tweney at dylan@infoworld.com. Please include "Talk Back" on the subject line.

▸ Intranet server software

Commerce Builder does it all

By David Strom If you are looking to establish a quick-and-dirty intranet server that will do more than just serve up Web pages, take a careful look at The Internet Factory Inc.'s Commerce Builder Web Server 2.0, which is scheduled to ship this week. It includes a Web server; a proxy server for Web, FTP (File Transfer Protocol), and Gopher services; and a chat server. Moreover, it comes with a powerful macro scripting language.

Commerce Builder's Web server is set up through either its own Control Panel dialog boxes or a remote Web browser connection. The tabbed dialog boxes are a bit confusing at first, because some screens have almost a dozen different tabs to navigate. Luckily, you won't have to mess with many of the defaults.

BETA

The chat server makes Commerce Builder interesting: You can establish real-time, text-based chat conversations easily through the use of your browser and a simple setup routine on the server side. All users access the chat room via a Web browser and add their comments via Web forms. It is very straightforward to use. Commerce Builder also includes a threaded discussion forum for non-real-time collaboration.

Commerce Builder comes with almost a dozen different Performance Monitor variables that you can track — about as many as Microsoft's Internet Information Server includes. Commerce Builder supports advanced features, such as Keep-alives, which increase response times by maintaining open connections — something not found on gardden-variety Web servers. For intranets, Commerce Server has extensive access-control lists, so you can limit which users will view which portions of your Web site.

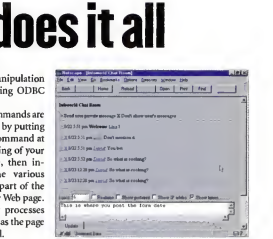
The real centerpiece of this product is its Server Macro Expansion feature, or SMX. This is composed of a series of proprietary HTML language extensions that do everything from page-hit counting to string manipulation and accessing ODBC databases.

SMX commands are recognized by putting a special command at the beginning of your HTML file, then including the various macros as part of the text of your Web page. The server processes the macros as the page is requested.

SMX does have one fatal flaw, however: its documentation. A separate manual describes each macro command and what it does, but there are few clear examples. The explanations of SMX syntax are frequently incomplete or confusing, which is frustrating because the language is potentially quite powerful.

Commerce Builder has reasonably good documentation for the server itself and also comes with several online Web pages that you can view to see examples of how to set up the server and walk through various features.

I tested Commerce Builder on Windows NT Server 3.51 on a 50-MHz Compaq Computer Corp. 486 with 32MB of RAM, which is the minimum configuration I would recommend for the product. Other versions are available for PowerPC and Alpha NT processors and for Windows 95 machines (although the Win95 version doesn't have all the features of the NT version, such as NT-based security features).



COMMERCE BUILDER'S *easy-to-use chat server lets users set up browser-based conversations.*

David Strom is president of his own consulting company in Port Washington, N.Y. His Internet address is david@strom.com; his newsletter is at http://www.strom.com.

THE BOTTOM LINE

Commerce Builder Web Server 2.0, beta

The Internet Factory's Commerce Builder is a combination Web, news, and chat server that can be used for intranets. It comes with powerful macro extensions that don't require much programming to do things that ordinarily require Perl or Common Gateway Interface scripts. Overall, the product is ideal for internal servers.

Pros: Easy to set up and configure; powerful macros.

Cons: No good sample macros.

The Internet Factory Inc., Pleasanton, Calif.; (800) 233-8335, (510) 426-7763; fax: (510) 426-9538; http://www.ifact.com.

Price: *Intel version: $395; Digital Alpha and PowerPC versions: $595.*

Platforms: *Windows NT (Intel, PowerPC, or Alpha processors), Windows 95.*

Ship date: *This week.*

CHARLOTTE'S WEB · THE TEST CENTER

Technology alone won't fix problems

We came, we saw, we probably should have run away. *InfoWorld* hired our company, Connexus Consulting Inc., to help them plan and implement their intranet solution. Sounds easy enough, right?

If you think so, you've never had to deal with a group of technology-savvy editors and writers searching for instant intranet gratification. It's like being the cook at a convention of chefs: It's hard to impress them!

In her first column, Charlotte Ziems explained the Test Center's needs: faster access to information; the ability to quickly build flexible, easy-to-use applications; and the ability to link information in intuitive ways. Like El Dorado shimmering on the horizon, an intranet seemed to offer the ideal solution.

Our first job was to dispel any notion that the challenges faced by the Test Center are purely technology issues, simply solved by the installation of an intranet. Fortunately, Charlotte and her team seem to understand this.

▸ This week's guest columnists are Ken Lownie and Tom Varney.

In our work with *InfoWorld*, the Connexus team started by trying to determine exactly what the Test Center was trying to accomplish from a business perspective. We analyzed their groupware requirements, categorizing the applications they need into four basic types: document repositories, discussion forums, tracking applications, and workflow solutions.

This breakdown is important because different groupware platforms — Lotus Development Corp.'s Notes, Microsoft Corp.'s Exchange, Novell Inc.'s GroupWise, and newer intranet-based solutions — offer differing capabilities across this spectrum.

Basic browser and Web server technology can support really just one type of application: a document repository. Only by adding an application layer can an intranet deliver more advanced capabilities required for conferencing, tracking, and workflow applications.

▸ CHARLOTTE *page IW/2*

▸Data conversion tool

AlphaConnect automates Web site maintenance

By Tom Bigley

SO YOU'VE FINALLY finished the company Web site, and you're feeling pretty smug. Now that your site is online, you have to make sure those pages stay accurate and up to date, or you'll soon discover that visitors (Internet or intranet) aren't coming back.

Alpha Microsystems Inc. has a solution to your problem that ought to restore that smug feeling in short order. AlphaConnect Pro 1.1 retrieves data from one location, reformats it as necessary, and exports it to another location — on schedules you specify, without any effort on your part after the initial setup.

The source and destination of the data can be nearly any place you can access with your system: local drives, the company's LANs and intranets, the Internet, and even legacy applications on your company's minicomputer or mainframe (provided you can reach these legacy systems through a TCP/IP connection). AlphaConnect can only import plain text or HTML documents, although it can export to a variety of formats.

I was most interested in its capability to turn imported data into HTML. It offers several options for customizing output, from simple HTML pages without bells or whistles to wizard-generated pages with background graphics, colors, and fonts. You can also choose to merge retrieved data into customized HTML templates you design.

Does your Web site include a catalog of products for your viewers to



YOU SPECIFY INFORMATION *for AlphaConnect to retrieve by mapping source data fields.*

peruse? You can use AlphaConnect to keep it current automatically. On a schedule that you specify, AlphaConnect will retrieve the latest product listing from the company's minicomputer (grabbing only the information you want displayed), merge the data into a customized HTML template, and post the new catalog pages on your site.

If you've included information from other Internet sites, AlphaConnect can retrieve current information by HTTP or FTP (File Transfer Protocol), reformat it as necessary, and update your site.

AlphaConnect can also help you out in other non-Web-related areas. In addition to exporting HTML, it can reformat data for use in any of six Windows applications — Microsoft Corp.'s Word, Excel, or Access; Corel Corp.'s WordPerfect or Quattro Pro; or Borland International Inc.'s Paradox.

AlphaConnect will retrieve the necessary data automatically, at whatever interval you specify, reformat it as needed, then launch the appropriate application with the data loaded and ready to use. If you've installed Alpha Microsystems' optional AlphaConnect Messenger (currently bundled with AlphaConnect Pro), you can even have it send the data via e-mail to whomever you choose.

I found AlphaConnect Pro surprisingly easy to use. Anyone who can create a basic Web site should find it pretty intuitive. The setup screens for defining retrieval and posting links are straightforward, fill-in-the-blank forms, with good online help, pop-up tips, and browse buttons for finding files.

Alpha Microsystems includes 200 sample links, many of which you may be able to adapt for your own use with only minor modification. If you need more information than the screens, online help, and samples can provide, you'll find plenty of documentation, including a 32-page users' manual with tutorial, at AlphaConnect's Web site.

Virtually every Web site I've worked on — or visited — required regular updating and attention to stay fresh and worth another visit. AlphaConnect can take over a substantial part of this load, freeing you up for that pile of new projects the boss is sending your way.

Tom Bigley, a longtime reviewer for InfoWorld, *recently retired from the Information Services Division of the city of Olympia, Wash. He can be reached at tbigley@orcalink.com.*

THE BOTTOM LINE

AlphaConnect Pro 1.1

BEST / CHEAP

AlphaConnect is a unique new package that can automate much of the work involved in keeping your Web site up to date.

Pros: Automatically retrieves and converts data in a variety of formats; easy to use; includes plenty of sample links you can adapt for your own use; free trial version and free Lite version available online.

Cons: Incapable of importing formats other than plain text and HTML; no 32-bit version yet.

Alpha Microsystems Inc., *Santa Ana, Calif.; (888) 226-6398 (toll free), (714) 957-8500; fax: (714) 957-8705; aconnect@alphamicro.com; http://www.alphaconnect.com.*

Price: *$140 (30-day trial as well as Lite version available free on Web site).*

Platforms: *Windows 3.11, Windows 95, or Windows NT 3.51 or later. Requires WinSock 1.11-compliant TCP/IP stack.*

Charlotte

Continued from page 1W/1

Choosing applications

For collaborative computing, the key question is not whether you will have and use an intranet, but what applications will run it.

As we dug in to the needs at *InfoWorld*, it became apparent that numerous opportunities for groupware applications existed in all categories. The focus of much of the collaborative work done at *InfoWorld* is coordinating the publishing schedules of three fast-moving editorial departments that are all trying to meet hair-pulling deadlines. So they need a very reliable system with broad functionality.

We also learned that the IS department is planning a major development of Notes, Release 4, and that Notes Mail will be the sole supported mail platform for the organization. So why can't the Test Center just use Notes?

The surprising answer is that the Test Center probably doesn't *need* an intranet for any particular functionality. But they almost surely need an intranet to make their collaborative initiatives *succeed*.

You see, at *InfoWorld* the initial rollout of Notes has not succeeded as well as it might. In the current Notes deployment, the full buy-in of a critical constituent group — the users in editorial — was not fully achieved, and Notes has developed a reputation as slow, ineffective, and difficult to use.

To help ensure that the intranet initiative does better, the Test Center and the IS department should follow several basic principles. The deployment should be driven by specific applications designed to support core business problems. (In contrast, the existing Notes deployment here has been characterized by a large number of applications, many no longer used, that were developed without an adequately compelling business need for them.)

In addition, the existing server infrastructure must be improved (a process that's already under way) and new users must be given sufficient training.

Of course, these problems can be fixed. In fact, many have been. Yet

Finding the right fit

Determining which intranet products meet your needs is a complicated process. Here's how to do it.

1. Assess collaborative requirements
2. Determine current environment's capabilities:
 - Current network infrastructure
 - Existing e-mail system
 - Support capabilities
 - Existing infrastructure plans
3. Reconcile requirements and capabilities
4. Choose the right tool for the job:
 - Internal Web site
 - Lotus Notes and Domino
 - Novell GroupWise
 - Microsoft Exchange
 - Hybrid applications

Notes continues to flounder, at least in the Test Center. First impressions matter, and they are hard to overcome. So what's the solution?

A win-win situation

In its latest incarnation of Notes, Lotus may have provided an answer. Lotus' HTTP Services for Lotus Notes (Domino), which is now available, allows browser-based access to Notes applications.

With Domino, complex tracking and workflow applications can be built and deployed on the Notes servers, ensuring that the applications can effectively support complex business processes. But users can enjoy the benefits of those applications from a browser interface, which allows the whole initiative to be packaged as an intranet project.

Our recommendation to the organization is to deploy Domino and support browsers as Notes clients for those who desire that configuration.

We also recommend that they evaluate their existing Notes applications, eliminate the marginal ones, rebuild the useful ones, develop new ones for several targeted business processes, and deploy them all so that they can be used from both Notes, Release 4, and browser clients.

This is important because, although the browser-based approach will provide a brief rose-tint to the old applications, the harsh realities of poor designs will soon show through again.

With this approach, we think they will have an excellent chance at succeeding in their initiative. But success is still far from guaranteed. One other major issue is that this time around all the right stakeholders buy in to this initiative, especially IS. If all the players don't agree, the result will simply add to the existing Tower of Babel.

What we found at *InfoWorld* was in many ways a typical struggle between IS and its most technical users. IS lives to provide a reliable, mission-critical infrastructure to all of its users. But often this leaves the most savvy users champing at the bit, wanting to move ahead.

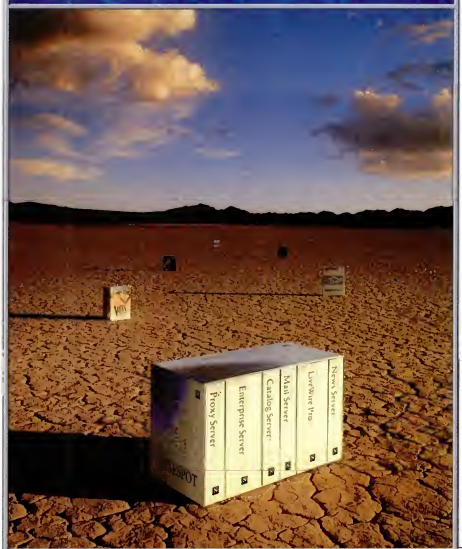
This is particularly true of a user group that spends its day evaluating all of the latest technologies, even before they are released. Now that the "break-away state" of the Test Center has developed its own plan, it needs to recognize its dependence on IS and develop a plan that lets both groups meet their goals.

Ken Lownie and Tom Varney are consultants at Connexus Consulting Inc., http://www.connexus-inc.com. You can write to Charlotte Ziems at charlotte_ziems@infoworld.com.

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▸ Web database publishing tool

Level 5 Quest Server features fine fuzzy searches

■ Publishes HTML-formatted databases so users can find information they need

By Kelly Conatser

Do your employees know exactly what they're looking for as they cruise your intranet? In many cases, you can safely assume the answer is no. To help such users find the records in your databases that come closest to their needs, Level 5 Quest Server 2.0, from Level Five Research, lets you publish HTML-formatted database tables that users can search for relevant documents using fuzzy logic querying tools.

When used on a Web site, Quest Server may entice Web surfers to stick around your site longer to explore your data or catalogs. But on an intranet, it's a near-perfect tool for developers who need to help users sift through large amounts of data.

Fuzzy can be fascinating

When a user submits a query, Quest Server displays the records that best meet the request. Each record and each field in a record receives a numeric score or icon (indicating how close it came to matching the target criteria.

The user can then view records one by one in a custom HTML page, click on links to URLs that you have embedded in the records (it's as simple as entering the URL into the source database), modify the criteria or importance ratings, and submit a new query.

This process is interesting because slightly changing the importance of one or two criteria can dramatically alter the set of records Quest Server returns, as well as the relative ranking between records. This in turn can affect the user's perception of the information in the database.

Form design

To create the query forms that end-users will use, you use the Quest Server's Web authoring tools. Almost every aspect of the process is graphical. Database access occurs through ODBC so there are no back-end worries after you've set up an ODBC data source, which is a relatively simple procedure that's adequately explained in the documentation.

Setting up a default query form, which consists of an edit box or a drop-down list for each field in the table, takes just a few minutes. The end-user will use this form to set criteria for one or more fields, then to specify which criteria are the most important. Drop-down lists adjacent to each field let the user choose one of five levels of relative importance for that field.

In Quest Server's Web authoring tools, you can specify icons to augment or replace the numeric relevancy scores; Quest Server ships with several icon sets and allows you to substitute your own.

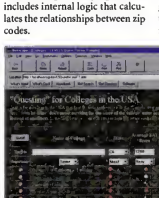
The authoring tools include several options that help you define how Quest Server will interpret a user's target criteria. You can use these options to help guide users toward the data that's relevant to them. In numeric fields, you can specify whether the program should try to match the target value exactly or whether it should be treated as an upper boundary or a lower boundary.

Value mapping

In text fields, the Value Map command makes it easy to define relationships between the entries by listing the unique items currently appearing in that field.

You drag each item onto a grid and define the item that is the target of the search (which the user can also change at run time, if you allow it). The other items' locations on the grid relative to the target item determine the score that each will receive.

For example, the United States value map included in the sample files allows you to specify that, in a search for vacation resorts in Missouri, alternatives in Arkansas would get higher rankings than those in Oregon. The program also includes internal logic that calculates the relationships between zip codes.



QUEST SERVER *query results use icons to show relevancy of each record or field.*

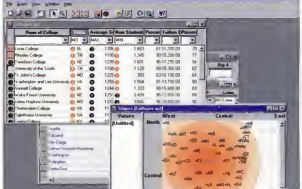
However, the possibilities go far beyond geography. A customer searching a music catalog for short works by Mozart could also be steered toward listings for Beethoven and Haydn and away from those for Rod Stewart.

The level of fuzziness you select for both values and text determines how close a value must come to the target to achieve the scoring levels you define, such as excellent, very good, and so forth.

Adjusting appearance

There are plenty of features that maximize Quest Server's Web potential. Within the confines of HTML page design, Quest Server gives you almost unlimited flexibility. For example, you can use an HTML page editor to create a custom front end for your queries in place of the default table format — a helpful option if the table is several columns wide and extends beyond the width of the screen. Using a block of radio buttons for the five importance ratings for each field can also help users to focus on the relative weighting for each field.

You can create HTML links to specific pages that display the results of predefined queries, which saves users the trouble of selecting criteria for commonly used queries and can even reduce the time needed to execute the queries. (Finding exact matches can be slow if a user specifies levels of importance for too many of the criteria fields, because the program spends unnecessary time trying to figure out which other records might also fit the criteria.)



GRAPHICAL VALUE MAPPING *allows you to define relationships between items in a text field so related items are retrieved together.*

Creating a link requires a little bit of fancy footwork with HTML because you must include the parameters of the query in the URL of the query-results page.

Simple dialog-box options let you append HTML header and footer code (which can be created in an HTML editor) to the body of the page, with options for different code before and after the query is submitted. Once your project is finished, you can test it locally on the fairly robust personal Web server that comes with Quest Server before transferring it to your actual Web server.

Documentation delivers

Quest Server comes with a 105-page tutorial and a 252-page users' guide that clearly explain the steps required to set up a project and take advantage of the program's features. Even more helpful is a series of fast-paced, lucid tutorial movies created with Lotus Development Corp.'s ScreenCam. These multimedia snippets comprise an hour of detailed instruction by example; several deal with specifics on Web site integration and ODBC setup.

Product support options include a fax-response line, live telephone support from 8:30 a.m. to 5 p.m. Eastern time, and direct e-mail to the support staff. A test call to the telephone support line produced quick, clear answers to questions about specific product details.

Quest Server's glitches are minor. The installation program is a bit quirky, and mistakes in some of the sample data may also cause temporary confusion for novice users as they try to manipulate the sample files.

Also, Developers who want to create complex business queries on an intranet may find themselves wishing for more than five options when it comes to ranking the relative importance of various criteria.

Quest Server's $1,495 price tag is several times the cost of more mundane, less polished Web querying tools, so you definitely pay for its power and ease of use. However, if you order the test version, beware: You may find it dangerously easy to ignore the price tag once you see how much useful information people can mine from the tables you are effortlessly publishing.

Kelly Conatser is an independent consultant and author who lives in Kenner, La. His Internet address is kelly_conatser@infoworld.com.

THE BOTTOM LINE

Level 5 Quest Server 2.0

BEST **COST**

Quest Server is a database publishing program with powerful fuzzy search tools. It queries existing databases via ODBC and displays query results in attractive Web pages that require little or no direct HTML editing.

Pros: Easy way to publish database tables on the World Wide Web; specialized query tools to help ensure meaningful and interesting query results.

Cons: Install program quirks; sample data mistakes.

Level Five Research, *a wholly owned subsidiary of Information Builders Inc., Melbourne, Fla.; (800) 444-4303, (407) 729-6004; fax: (407) 727-7615; http://www.L5R.com.*

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▸ Java code generator

Build applets by drag and drop with Parts for Java

By Cess Shankar

A MAJOR PART OF programming an interactive application involves the design and coding of the GUI. Parts for Java, from Smalltalk powerhouse ParcPlace-Digitalk Inc., will help you create those GUIs and visually bolt applets together without writing much Java code.

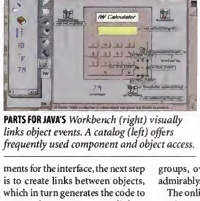
Parts for Java 1.0 can be used by itself, although Sun Microsystems Inc.'s free Java Developers' Kit (JDK) is required to compile and test the applets you create. JDK, Version 1.0.2, comes on the Parts for Java CD-ROM and must be installed first. Parts for Java can also be used with other development environments, such as Sun's Java Workshop and Symantec Corp.'s Cafe. I tested it as a stand-alone applet creator with Windows 95.

The three main features of Parts for Java are visual programming, the ClassMaster browser, and the Component Wizard. Launching Parts for Java opens the visual programming environment in the form of a new Workbench and Parts Catalog.

The Catalog contains multiple pages, each of which has several icons representing Java objects. The development process involves dragging parts from the Catalog, dropping them on the Workbench, then visually drawing links between objects to process events.

All components, such as buttons and text boxes, can be dropped into a container (which can be an applet, a window, or a dialog box), then moved, sized, and aligned.

After placing all the needed elements for the interface, the next step is to create links between objects, which in turn generates the code to process the events. Creating links is done by merely drawing a line from a source object to a target, then selecting from the available options presented by a pop-up wizard.



PARTS FOR JAVA'S *Workbench (right) visually links object events. A catalog (left) offers frequently used component and object access.*

I found this graphical display of object-event links very useful in understanding the applet and the relationships among its objects. However, it took some getting used to. With a complex applet, all those links can clutter the Workbench. Selectively displaying the links, individually or in groups, overcomes this difficulty admirably.

The online tutorial and the users' guide are somewhat useful but probably inadequate for developers unfamiliar with programming models based on Smalltalk.

In addition to the components provided in the Parts Catalog, you can import any Java class from JDK, from third-party products, or from your own creations.

The ClassMaster browser, invoked from the Workbench menu, is among the best class browsers I've seen. The entire Java class hierarchy can be traversed with this tool.

The built-in editor for adding Java code directly (required for computations and other program logic) is adequate, but it is not a full-featured programming editor. For example, I could not quickly navigate to a line number in the source file to locate compile errors.

Once you've assembled your applet, all you need to do to create the Java source code is save the Workbench to a file. A Compile and Execute button launches the Java compiler and, if compilation is successful, the applet viewer. Parts for Java includes no high-level debugging aids.

Using Parts for Java's Component Wizard, you can add new components to the Parts Catalog. With this wizard, you select any Java class, assign it an icon, and set up the part's properties to enable it for drag-and-drop programming.

I found Parts for Java slow to load, and I also experienced some crashes while testing it, apparently due to lack of memory.

Because both the users' guide and tutorial are HTML documents, I had to keep a Web browser open to use them, which ate up valuable system resources.

Gess Shankar (gess@earthchannel.com) is an electronic publishing and Web consultant and author.

THE BOTTOM LINE

Parts for Java 1.0

BUY

Parts for Java is a visual programming tool for developing Java Web applets and applications.

Pros: Enables and enforces object-oriented design and visual development; Parts Catalog for frequently used objects; link-creation wizards; includes a class browser.

Cons: Online documentation only; users' guide needs improvement; useful primarily in creating user interface; no debugging tools other than those provided in Java Developers' Kit; no team programming features.

ParcPlace-Digitalk Inc., Sunnyvale, Calif.; (800) 759-7272, (408) 481-9090; fax: (408) 481-9095; http://www.parcplace.com.

Price: $99 per seat.

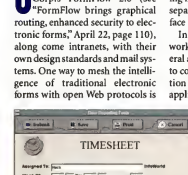
Platforms: Windows 95, Windows NT 3.51

▸ Electronic forms software

UWI's Masque saves face of intranet business forms

By Mike Heck

JUST WHEN YOU thought you'd mastered an electronic forms application, such as Symantec Corp.'s FormFlow 2.0 (see "FormFlow brings graphical routing, enhanced security to electronic forms," April 22, page 110), along come intranets, with their own design standards and mail systems. One way to mesh the intelligence of traditional electronic forms with open Web protocols is by using helper applications.



MASQUE'S VIEWER *and forms language provide layout control and data validation not available with standard HTML form tags.*

Masque 2.4, from Unisoft Wares Inc. (UWI), is a forms viewer that runs as a helper from most Web browsers. The dialect used to create Masque forms, UWI's Universal Forms Description Language (UFDL), overcomes the layout limitations of HTML. Completed forms (with accompanying data and attachments) can be submitted using almost any SMTP mail system. Alternately, data can be transmitted through the browser, allowing information to be processed by separate Common Gateway Interface (CGI) applications.

In its current form, Masque works well. However, there are several areas that UWI is still working to complete, including the description language and a form-design application. Therefore, I'd suggest that you give this solution a trial run but wait before embarking on a full-scale rollout.

UWI offers a range of sample forms that can be modified with a text editor; I made simple changes to one in 15 minutes. UFDL's C language syntax is not for end-users. For now, UWI says it will reproduce some of your paper forms in UFDL for little or no cost.

The form-design application should resolve this problem, but it waits in the wings while UFDL undergoes refinements. For example, calculation functions are still being added — an important ingredient of any automated form. The revised specifications will also permit the embedding of Java code.

Those concerns aside, Masque has the makings of a decent forms viewer. I had no problem configuring it as a helper application from all the major Web browsers (a plug-in version is under development). The sample forms appear much better than most I've seen designed with HTML forms tags. For instance, fields appear precisely aligned, and drop-down lists are easy to use.

Besides aesthetics, Masque provides data error-checking, formatting, spell-checking, and a search-and-replace tool.

In addition, forms may contain attachments, such as word processing or spreadsheet files. The form definition, data entered, and attachments are all put into a single text file (using a special ASCII conversion technique) that can be saved and delivered using any e-mail system.

The process of enclosing attachments and extracting them is very simple, using buttons and dialog boxes designed into the form. Mailing a form can occur either through a Web browser or by invoking your mail application, but these options must be hard-coded in the form.

A developer's toolkit with APIs for integrating forms with other applications is included. UWI includes a PostScript Print Server that's implemented as a CGI script. UWI indicated that other companies are working on CGI database gateways to let Masque forms interact with ODBC-compliant databases.

Clearly, there's work to be done. Still, UFDL looks as if it could become the de facto electronic-forms standard for intranets. That's reason enough, I think, to examine how you might apply Masque as you build more around your intranets.

Mike Heck, an InfoWorld *contributing editor, is manager of electronic promotions for Unisys Corp., in Blue Bell, Pa. He can be reached at mike_heck@infoworld.com.*

THE BOTTOM LINE

Masque 2.4

BUY

Unisoft Wares Inc.'s (UWI) Masque electronic forms, which are designed around UWI's public Universal Forms Description Language (UFDL), let you closely match the layout of paper forms. Electronic forms are viewed and completed from a Web browser using a special helper application.

Pros: Easy-to-mail UFDL-based forms; possible to create forms that work with Common Gateway Interface print servers or database gateways, or that interact with standard HTML documents; files can be attached to forms; advanced functions, such as spell-checking, included in viewer.

Cons: Form-design application still under development; 16-bit application; typically requires third-party applications for integration with databases or other programs.

Unisoft Wares Inc., *Victoria, British Columbia; (604) 479-8334; info@mail host.uwi.bc.ca; http://www.uwi.bc.ca.*

Price: *Viewer: $119 (free to educational institutions); Developer's toolkit: $995.*

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INSIDE THE FIREWALL · DAVE TAYLOR

Intranets should focus on business, not technology



TALK ABOUT BARKING UP the wrong tree! At the Windows NT Intranet Solutions conference in San Francisco last month, the most pervasive type of products hawked by vendors (after Web site development applications — the software niche of the hour) was fax programs.

In the past 30 days alone, I've seen fax software and hardware announcements from a dozen companies.

What's the story here? Have these people all lost control of their strategic planning ability? Maybe it's just me, but when I think of the great unsolved problems in the computer industry, and particularly when it comes to corporate networks and intranets, faxing isn't what immediately comes to mind.

Vital applications

What we need to focus on are technologies that let you use the network wire plugged in to your computer in ways that you might never have imagined. On top of that list, for me, are technologies that make the transition from local data to network data invisible.

You are probably already using shared file servers, so you don't have to have your own personal copies of other applications you use in your work. The advantages of central application services are tremendous, and I've spoken of them in a previous column.

What's coming next are transparent systems that will keep accurate snapshots of all the data on your disks and store them in a central server on the network.

That's where longtime Unix backup solutions, such as NetWorker from Legato Systems Inc., are finding a new niche. NetWorker, in its newest iteration, is an enterprisewide storage manager that can manage backups of DOS, Windows (3.x, 95, and NT), Macintosh, and Unix systems. Far from being dull, a smart central backup storage system is vital to any *useful* intranet.

Taking care of business

In fact, intranets aren't about the World Wide Web, per se. They're about intelligently using the existing network infrastructure to make individual workers more powerful and more productive by giving them access to more information more easily and with better tools. In the process, intranets empower organizations to be more competitive.

That's part of the problem, too. Talk to some of the new intranet vendors and you'd think that the desire of every company in the world, whatever its business, is to become a group of computer experts.

A classic example I hear every week: It's OK for company X to build an intranet without sufficient new staff because each group can publish its own Web pages, keep those pages up to date, and maintain an online phone directory, too. No problem.

Now if you were a medium-size company and were feeling the crunch of competitive market pressures, would you want your salespeople, your marketing whiz, and your engineers dedicating their precious working hours to playing with company Web pages? Definitely not.

That's the real challenge, and that's why it's so important to step back and consider intranets not as a fancy new publishing tool, but as an opportunity to reconsider the fundamentals of effective work spaces.

In the "dull" world, where you focus on your actual job rather than on the computer that helps you get that job done, the simple things such as reliable backups are very, very important.

And, well, yes, sending a fax directly from your computer on a shared fax server would be useful. But aren't there much bigger issues for the industry to tackle first?

Dave Taylor is president of Intuitive Systems, an intranet design company (http://www.intuitive.com). You can reach him at taylor @intuitive.com.

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*Price in US dollars, plus shipping, handling and applicable taxes. If you purchased HoTMetaL PRO 2.0 after March 18, 1996 for $99 US or more, then you can upgrade to HoTMetaL PRO 3.0 for free.

PIPELINE

ANNOUNCED

Galileo Technology Ltd. will announce at NetWorld+Interop this week in Atlanta the 48002 Fast Ethernet switch, a single chip that uses the PCI bus architecture and built-in network management to provide Fast Ethernet switches at about half the price per port of existing technology, according to company officials. Galileo has already developed a single-chip Ethernet switch. (408) 451-1400.

DATA RACE INC. will unveil a bandwidth manager for voice, fax, and terminal traffic at NetWorld+Interop. NetEscort, set to ship by the end of December, features two synchronous and asynchronous data ports, two voice ports, and IP/IPX bridging and routing. NetEscort's enhanced processing system improves throughput performance on lines up to 128Kbps and is compatible with existing Data Race products. NetEscort costs $4,895. (210) 263-2000; http://www.datarace.com.

PHONET COMMUNICATIONS LTD. will announce at NetWorld+Interop the availability of EtherPhone, a telephony system that extends PBX capabilities to a standard LAN, offering integration of telephony and data networks. The telephony server manages the phone lines with full PBX functionality, complete with voice mail, auto-attendant, and management and administration functions. It supports Windows 95 client interfaces. The product is scheduled to ship by the end of December. Pricing information will be available when the product ships. (212) 642-6563.

ACCUGRAPH CORP.'S IP Address Management system software has been chosen to manage vendor IP addresses at the NetWorld+Interop show and in other cities in North America and Europe. The company is providing multiple licenses, hardware, training, support, and implementation services. (915) 581-1171.

Cisco will play Tag with IP switching

By Stephen Lawson

NETWORLD+INTEROP CISCO SYSTEMS Inc. will demonstrate at NetWorld+Interop in Atlanta this week a technology that can remove the route processing bottleneck from within Internet service provider (ISP) backbones and give companies access to different classes of Internet service.

With Tag Switching technology, Cisco 7500 routers on the edge of an ISP's network will be able to assign tags to packets and Asynchronous Transfer Mode (ATM) cells. Inside the provider's infrastructure, 7500 routers and Cisco StrataCom BPX ATM switches will be able to switch packets and cells, based on those tags, to the edge of the ISP's network.

The edge routers determine paths through the network using standard routing protocols and then distribute tag information to all the nodes in a path using Cisco's Tag Distribution Protocol. Each node can then forward the packet or cell based solely on the tag. When it reaches the other edge of the network, the tag is stripped off.

Tag Switching will be included in a future version of the Internetwork Operating System coming in the first half of 1997 and will be available for the Stratacom switches later next year. Last week, Cisco was preparing to submit the Tag Distribution Protocol to the Internet Engineering Task Force for standardization.

Richard Palmer, director of marketing for Cisco's Core Products Business Unit, said Cisco's approach is more scalable than Ipsilon Networks Inc.'s IP switching because traffic flows can be switched and prioritized based on large groups of addresses, removing the need to keep track of individual IP addresses for switching.

According to Palmer, queues exist in IP and ATM headers that allow users to set up eight or 16 levels of priority, respectively. In a simple application, for example, tag switching would allow ISPs to set up a high level of priority for data coming from faculty addresses at a university, and a lower level for data from student addresses.

"Cisco is trying to eliminate the perception that routers don't scale as well as switches," said John Morency, a principal at The Registry, in Newton, Mass. Whether this solution can do that remains to be seen, he said.

But Morency believes the multiprotocol support of tag switching and the fact that it operates across switches as well as routers could make it more attractive than Ipsilon's technology. He added that tag switching is likely to support multimedia capabilities that Cisco is planning for its 7000 series routers.

Cisco, in San Jose, Calif., can be reached at (408) 526-4000.

Vendors to show pre-standard Gigabit Ethernet technologies

By Stephen Lawson

NETWORLD+INTEROP MANY VISITORS to NetWorld+Interop in Atlanta this week will get their first glimpse of high-speed Gigabit Ethernet products, designed to provide a painless upgrade path for strained enterprise networks.

However, some observers said users should be wary of products launched before a standard is set.

Companies including Cabletron Systems Inc., NBase Communications Corp., Alteon Networks Inc., and Ancor Communications Inc. will be demonstrating Gigabit Ethernet switch technology at the trade show.

Gigabit Ethernet has been the focus of a wave of interest since it was proposed to the IEEE last fall. Most networking hardware vendors have joined the Gigabit Ethernet Alliance, and Cisco Systems Inc.'s $220 million acquisition of start-up Granite Systems Inc. earlier this month showed how eager established networking companies have been to jump on the bandwagon.

Observers expect the IEEE specification for Gigabit Ethernet to be largely written by mid-1997 but not to be approved until 1998.

"What you're going to see are early pre-standard products that are designed to be as compliant as possible with the standard in progress," said Don Miller, an analyst at Dataquest Inc., in San Jose, Calif. "They may or may not interoperate going forward — but usually there are ways to bring them into the standard."

Cabletron will show a Gigabit Ethernet module for its MMAC Plus enterprise switching hub, which company officials said should ship in 1997.

> Engineers developing Gigabit Ethernet have built in 1.25Gbps of capacity to allow for about 250Mbps of overhead.

NBase Communications, which has said it will ship a Gigabit Ethernet interface for its MegaSwitch II beginning in November, plans to demonstrate the technology this week. The company has said users will be able to upgrade the module to the final standard by swapping in just one element of the hardware.

Alteon and Ancor will both build on their previous experiences in other high-speed technologies.

Alteon, founded by former executives of Ultra Network Technologies Inc., which specialized in High Performance Parallel Interface, will demonstrate a Gigabit Ethernet adapter. (See "Budding Alteon to offer Gigabit Ethernet switch," Aug. 26, page 58.)

Ancor has built gigabit-speed LAN products based on the Fibre Channel architecture, around which Gigabit Ethernet is being developed, and will be showing a Gigabit Ethernet backbone switch.

Other companies planning to demonstrate the technology include UB Networks Inc. and Essential Communications.

GigaLabs plans alternative PCI-based, high-speed links

■ GigaPipe technology gives 1.6Gbps

By Stephen Lawson

NETWORLD+INTEROP GIGALABS INC., a supercomputing connectivity vendor, will attempt at NetWorld+Interop this week to leapfrog Gigabit Ethernet with a PCI-based technology designed to offer users 1.6Gbps of network throughput.

Officials at the Sunnyvale, Calif.-based company said its GigaPipe technology extends the system bus of any PCI server directly over a fiber link to GigaStar 100 or GigaStar 2000 Ethernet switches. GigaPipe can run over multimode or single-mode fiber, or via the specialized copper wiring used in supercomputing environments.

The stackable GigaStar 100 supports as many as 32 10Base-T ports and Fast Ethernet, Asynchronous Transfer Mode (ATM), or FDDI uplinks. The GigaStar 2000 is a nine-slot switching hub with a 14.4Gbps switching fabric and ATM, Fast Ethernet, or FDDI uplinks.

Don Miller, an analyst at Dataquest Inc., in San Jose, Calif., said the solution should appeal to managers of highly congested networks.

"When you move to a micro-segmented network and Fast Ethernet in the workgroups, you have a lot of traffic aggregated in the wiring closet," Miller said. "There are a handful of people who need the bandwidth today, and, if they're satisfied that GigaLabs is a viable vendor, they'll go for it."

The GigaStar 100 chassis will cost $1,595. The GigaStar 2000 chassis will have a list price of $15,000 but for a limited time will be free with a $15,000 purchase. A GigaPipe uplink, including a server network interface card, will cost $2,495. These products will be available Oct. 25.



GIGALABS *has equipped each slot on the GigaStar 2000 with a 1.6Gbps switching fabric.*

GigaLabs can be reached at (408) 481-3030.

Network management suites

HP OpenView suite to target smaller sites

By Jeff Walsh

HEWLETT-PACKARD CO. is offering a network management suite aimed at small to midsize networks that includes bundled software from Symantec Corp. and McAfee Associates Inc.

HP OpenView Professional Suite builds on the company's existing OpenView Workgroup Node Manager and adds HP management software for servers, desktops, printers, and network devices. Desktop management software from McAfee and Symantec round out the suite's 12 integrated components.

"I think it's attractive to a lot of end-users, and there are not a lot of competitive products," said Tim Wilson, senior consultant for Decisys Inc., in Sterling, Va.

> More than 100 plug-in solutions that are compatible with this suite have been developed by vendors.

HP OpenView Workgroup Node Manager, the centerpiece of the suite, is designed for heterogeneous networked environments running Windows 95 or Windows NT and supports both IP and IPX network protocols.

The Node Manager has auto-discovery, mapping, polling, and alarm/trap status.

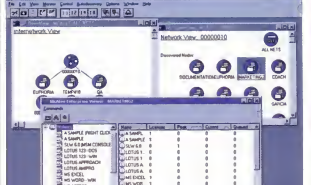
The 12 components of the Professional Suite are HP OpenView Workgroup Node Manager, HP AdvanceStack Assistant, HP Exposé from Symantec, HP JetAdmin, HP Netserver Assistant, HP NetMetrix/Win, HP Powerwise Assistant, HP TopTools, Symantec's Norton Administrator for Networks, Symantec's Norton pcAnywhere, Ex Machina Inc.'s Notify Connect, and McAfee's Saber LAN Workstation.

HP is reselling Symantec's Exposé product under its own brand, although the other Symantec and McAfee products will retain their original brand identity.

Despite the different companies involved, HP will offer a single support line for all products.

HP OpenView Professional Suite ships Oct. 1 at a list price of $1,495, which includes one server license and 10 node licenses for the McAfee and Symantec products. Additional software licenses are available from their respective companies.

HP is based in Palo Alto, Calif., and can be reached at (800) 752-0900.



MCAFEE ENTERPRISE *combines network security and management tools into an integrated Windows NT-based suite.*

McAfee aims for NT with linked management suite

■ Enterprise product has common apps

By Jeff Walsh

NETWORLD+INTEROP

MCAFEE Associates Inc. is launching a network security and management suite for Windows NT users this week at NetWorld+Interop in Atlanta.

McAfee Enterprise (Me) is an integrated suite consisting of 10 distinct modules sharing common communication protocols, as well as the same user interface, data dictionary, scripting language, reporting, and messaging infrastructure.

Users of Hewlett-Packard Co.'s OpenView, Tivoli Systems Inc.'s TME 10, BMC Software Inc.'s Patrol, Network General Corp.'s Distributed Sniffer, and Seagate Software, Storage Management Group's Backup Exec will benefit from the integration already available with Me, from the user interface and messaging level, via the alliances McAfee has built with these vendors.

Me will integrate four previous McAfee suites and their modules: VirusScan, NetCrypto, and WebCrypto from the Secure-1 suite; WebWall, WebShield, and WebID from the SecureWeb suite; NetShield and Backup Executive from the NT-ssential suite; and Remote Desktop 32, Saber LAN Workstation, and Vycor Enterprise from the McAfee Service Desk suite.

Bill Woloch, manager of Information Services at George Washington University Medical Center, in Washington, said McAfee seemed to have provided the integrations users require.

"I think they've finally got a suite of products that not only complement each other but respond to one another as though they were created by one company," Woloch said.

The suite works across local LANS, enterprise WANs, intranets, and the Internet.

Me begins shipping this week at a cost of $125 per node for 1000 nodes. The WebWall and WebID components of SecureWeb begin shipping later this year.

McAfee, in Santa Clara, Calif., can be reached at (408) 988-3832 or http://www.mcafee.com/.

VISUAL NETWORKS ADDS SUPPORT FOR FRAME RELAY

VISUAL NETWORKS INC. is extending the managed-access support of its Visual UpTime product to multiservice wide area network environments.

One of the highlights of the product is its capability to track frame-relay device access rates using a Channel Service Unit/Data Service Unit with an embedded network management capability.

"In a very simple, unambiguous way, it can tell a user what the performance is," said Tom Nolle, president of CIMI Corp., in Voorhees, N.J.

"They've got a real clever idea and straightforward approach: Let's just send something from one end to the other and time it," Nolle said.

Sprint Corp. recently announced it will offer Visual UpTime Analysis Service Element in conjunction with its frame-relay service.

The product also contains Visual UpTime Burst Advisor, which automatically recommends WAN bandwidth based on 1-second usage measurements, as opposed to traditional 15-minute summaries, which can be misleading.

Visual UpTime is available now, and upgrades are free to existing customers.

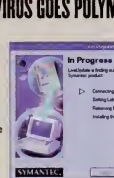
Visual Networks, in Rockville, Md., is at (301) 208-6784.

— *Jeff Walsh*

PRODUCT SPOTLIGHT

NORTON ANTIVIRUS GOES POLYMORPHIC

Symantec Corp.'s Norton AntiVirus for NT 2.0 incorporates several features into its latest release, including Striker, which can detect and remove polymorphic viruses. LiveUpdate allows a one-button update of virus definitions through an Internet or dial-up connection. Auto-Protect provides background protection running at the kernel level of Windows NT. Repair wizards help guide users through virus cleaning by showing them what is happening on their system. The Windows NT-native anti-virus software also provides protection across common network server platforms. Norton AntiVirus, which works on Windows NT 3.51 and Windows NT 4.0 workstations and servers, ships Oct. 2 and costs $70. Symantec is based in Cupertino, Calif., and can be reached at (800) 441-7234.



Spectrum will use Seagate for its application management

By Stephen Lawson

CABLETRON SYSTEMS INC. last week agreed to add Seagate Software, Storage Management Group's AppControl to its Spectrum network management product, allowing users to manage the performance of their applications, systems, and networks from a single console.

The company will resell Seagate's AppControl application management software and integrate it with Spectrum's core knowledge base. Users will be able to use information and policies from AppControl in Spectrum reports and management functions.

AppControl, formerly called Atrium, is the first application written for a comprehensive framework that Seagate announced last month. (See "Seagate plans unified software management for acquisitions," Aug. 26, page 58.)

Early next year, its ExecView and Backup Exec will be brought into the same framework. All the applications will share a common interface.

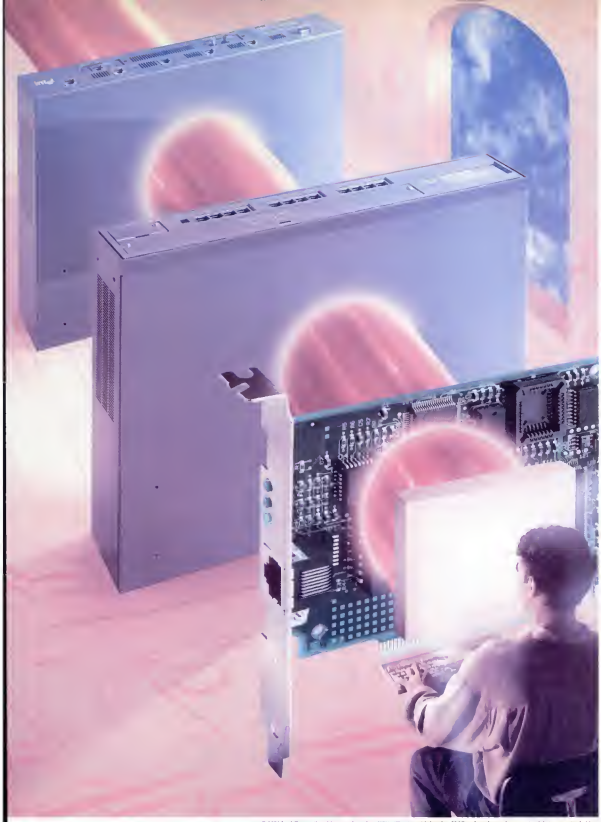
The Seagate applications will take advantage of Cabletron's Web-based alarm and reporting functions. An official said Seagate's own applications would gain Web interfaces but could not say when these would be available.

AppControl runs on Sun Microsystems Inc.'s Solaris and SunOS platforms and on Silicon Graphics Inc.'s Irtix platform.

AppControl is available now, priced at $15,000 per license for a single-user interface and $1,000 for each additional license.

Cabletron, in Rochester, N.H., can be reached at (603) 337-2211.

Seagate, in Lake Mary, Fla., can be reached at (407) 333-7500.



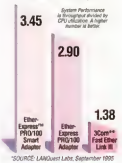
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*SOURCE: LANQuest Labs, September 1995

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▸Network management software

Norton Administrator 3.0 manages the enterprise

■ Premier Edition can handle multiple sites from a single workstation

By Mike Avery

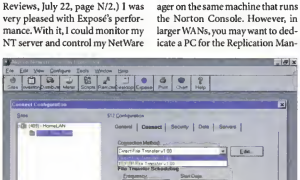
EXTENDING ITS REACH into the enterprise, Symantec Corp. now provides network administrators with a scalable solution for managing multiple LANs or sites with Norton Administrator Suite, Premier Edition 3.0 (NASPE).

In addition to offering all the useful management features provided in Norton Administrator Suite, Essential Edition — such as hardware and software inventory, software distribution, and software metering — NASPE provides strong server-management capabilities and some physical network monitoring.

Like the Essential Edition (see Networking Product Reviews, May 13, page N/1), NASPE does not offer DOS menuing.

However, this is becoming less of a shortcoming as more organizations move from DOS and Windows 3.1 to Windows 95.

NASPE provides server management for Windows NT, NetWare, and Banyan Vines platforms via Symantec's stand-alone Exposé product. (See Networking Product Reviews, July 22, page N/2.) I was very pleased with Exposé's performance. With it, I could monitor my NT server and control my NetWare server from the same workstation console.



WITH NORTON ADMINISTRATOR SUITE, PREMIER EDITION 3.0, *you can use the console programs to customize the replication process, including the communications method, the frequency of communication, and the type of data you want to replicate.*

However, NASPE offers little in the way of wire-level network monitoring. Exposé provides traffic monitoring but no capability for capturing packets or performing protocol analysis. In contrast, Novell Inc.'s ManageWise carries out these tasks via the bundled LANalyzer product. (See Networking Product Reviews, April 15, page N/1.)

THE BOTTOM LINE

Norton Administrator Suite, Premier Edition 3.0

NEXT / COLD

Symantec has succeeded in delivering a technical tour de force. Norton Administrator Suite, Premier Edition, provides powerful and intuitive system management that will greatly benefit managers of large WANs (especially heterogeneous ones).

Pros: Capability to manage multiple sites from a single workstation; capability to manage multiple servers running disparate operating systems from a single platform; largely platform independent; great uninstall program.

Cons: Multisite installation needs refinement; monitors only network traffic.

Symantec Corp., *Cupertino, Calif.; (800) 441-7234, (541) 334-6054; fax: (541) 334-7474; http://www.symantec.com.*

Price: *$59 per node for 1,000 licenses; $45 per node for 5,000 licenses.*

Platforms: *Client: DOS, Windows 3.x, Windows 95, Windows NT Workstation, Macintosh, OS/2; Server: Windows NT Server, NetWare, Vines, Microsoft LAN Manager, Digital Pathworks, IBM LAN Server and Warp Server.*

Line of site

Using the site-configuration module, I could define a hierarchical management structure, allowing the central office to manage regional offices, which could manage field offices. This structure minimizes the amount of network-management data traffic and lets network managers intelligently delegate administrative tasks. (According to Symantec, NASPE supports an unlimited number of hierarchical levels.)

The inherent problem in managing a WAN is keeping track of and controlling the enterprise from the central site. With NASPE you have a Windows 3.1- or Windows 95-based PC at each site that runs the Replication Manager software, which keeps all the NASPE central-site databases current. Thus, all the information available locally is also available at the central site.

You can run the Replication Manager on the same machine that runs the Norton Console. However, in larger WANs, you may want to dedicate a PC for the Replication Manager to accommodate the heavier traffic load on the processor.

Smooth operator

NASPE's replication is a smooth, behind-the-scenes operation. For example, when a user logs in from a client PC, NASPE runs a system hardware and software inventory, and puts that information into a file in a queue for the computer that's running Replication Manager.

When Replication Manager processes the file, the data is sent to the central site at scheduled intervals (as determined by the administrator) and used to update the local database. This process is bi-directional.

I distributed software to a remote site using NASPE's replication feature. I needed only to select the software-distribution function in the Norton Console, the site I wanted to update, and the software package for distribution — in this case, NASPE's Software Metering program.

The Replication Manager at the remote location ensured that the needed software was on the remote site's server and updated the software distribution there.

When the clients at the remote site logged in, NASPE's software distribution program installed the package automatically. I then could access the metering information for the remote site at the central office via replication.

I have previously seen this level of control only in custom software. None of those systems, though, was as clean and easy to use as NASPE.

It's in there

Norton Administrator Suite, Premier Edition 3.0, gives network administrators everything they need to manage both WANs and LANs, although the network monitoring is a tad lacking

- Charting tools
- Data replication and transfer
- Desktop management
- Network monitoring
- Remote workstation control
- Reporting tools
- Sensitive file tracking
- Server management
- Software distribution
- Software metering
- System inventory
- Virus protection

Nuts and bolts

The initial installation process was painless, though lengthy. The complete installation consumes approximately 75MB of server storage space.

The only minor problem I encountered was that NASPE couldn't update the Novell Directory Services container log-in script on my NetWare 4.1 server.

After the initial installation was complete, I began to install the software at other sites. That's where things got a bit sticky.

To install NASPE at another site, I had to define that location in the site-configuration screen within the Norton Console. I was then prompted for the location of the NASPE master disks so the site-installation process could prepare a release package of the Symantec software for the remote location.

Sadly, I was given only one chance to enter the directory name. When I made a mistake, the installation process terminated.

In attempting to restart the second site installation, I corrupted the NASPE database. As a result, the desired data and inventory replication did not occur.

Neither I nor Symantec's support staff could determine why my database got corrupted. After trying several possible solutions, I finally just removed and reinstalled the software.

The uninstall routines worked very well, leaving only a few databases in a single directory on the file server — nothing a simple DELTREE command couldn't remove. Single directory installations are a wonderful, welcome thing for network managers, as are uninstall programs.

My second attempt at installing NASPE at a remote site proved successful. Trouble-free after I correctly entered the name of the source directory.

Buy the book

As with the Essential Edition of Norton Administrator Suite, the Premier Edition's documentation is all online in Adobe Acrobat format. You can get hard-copy manuals from Symantec for $25 — a fair deal considering the size of the manuals.

This is certainly more reasonable than the $250 Novell charges for the ManageWise 2.1 manuals.

Mike Avery is a networking consultant based in Beaumont, Texas, who has designed and supported networks of all sizes. He can be reached at mavery@pernet.net.

THIS WEEK



■ KeyServer 4.2 N/4
■ Quick Bytes N/4, N/9
■ Retrospect Remote 3.0 and Remote Pack 1.0 N/9
■ Directory and Security Server N/12
■ Winterm 2500T N/12
■ LAN Talk, *by Paul Merenbloom* 65

FOR THE RECORD

Memco Software Inc.'s Security for Open Systems 1.4 does not support mainframe platforms, as stated in our July 8 review (page N/6).

HOW WE REVIEW

Product Reviews examine new products, focusing on their usability, features, and suitability to task. Our expert reviewers rate shipping products on a scale of cold to hot. The authors do not employ the extensive analyses used in Product Comparisons, so their conclusions may be different.

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▸ Software metering and licensing tool

Sassafras package holds the key to legal software

■ However, this cross-platform product requires at least one Macintosh to run

By Earl Greer

IN ANY ENTERPRISE, metering licensed software makes good sense. Not only does it keep your company legal, but you can save money by purchasing only the number of licenses you really need.

Of the current metering and licensing offerings, Sassafras Software Inc.'s KeyServer 4.2 goes one step further by allowing you to give users software keys to licensed copies of programs.

This scheme makes KeyServer's license enforcement more difficult to break.

Unlike products such as McAfee Associates Inc.'s SiteMeter and On Technology Corp.'s SofTrack (see Product Reviews, March 18, page 110), KeyServer is not file-server resident. Therefore, end-users can still access licensed software if a server goes down. (You can install KeyServer on a file server if you like.)

KeyServer also can track software launched from a local PC hard drive. In addition, the Sassafras software doesn't create as much network traffic because it's not sending the entire executable file to the user, only the smaller key portion.

The disadvantage to KeyServer's approach, though, is that it requires client software installed on each workstation in order to run.

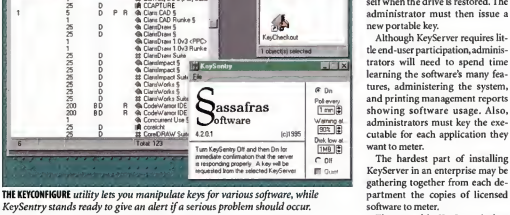
KeyServer provides many useful features similar to those of its competitors, including monitoring idle programs and warning or logging out idle users.

In addition, you can let users launch keyed applications even if all keys are in use. However, this product costs more than similar license-metering offerings.

KeyServer is a cross-platform product that supports a range of operating systems, including Windows, Macintosh, and A/UX. With the latest 4.2 version, KeyServer now meters native 32-bit Windows 95 and Windows NT applications. Because KeyServer was originally developed for the Macintosh, the software still requires at least one Mac on the network to act as a license server.

Although there is currently no way around this requirement, Sassafras may offer a version next year that can use an IBM-compatible computer as the license server.

Until then, you can use any Mac that has either an Ethernet connector or a Token Ring adapter. Even a museum-quality Macintosh SE that's been collecting dust in storage would be sufficient. Also, the Macintosh doesn't have to be dedicated to KeyServer.



THE KEYCONFIGURE *utility lets you manipulate keys for various software, while KeySentry stands ready to give an alert if a serious problem should occur.*

Talkin' the talk

I support more than 19,000 workstations on my networks, but I don't have a single Macintosh.

For my testing purposes, I logged in to Sassafras' license server via TCP/IP and within minutes was receiving software keys as fast as if the server had been in the next room, instead of half a continent away. This was a convincing demonstration of KeyServer's capabilities with TCP/IP, a protocol not supported by some competing software-metering solutions that support clients over the Internet.

KeyServer also works with IPX (Novell Inc.'s implementation only, not Microsoft Corp.'s) and AppleTalk (EtherTalk).

KeyServer comes on just two disks — one for Mac and one for Windows clients. Installing the software on my Windows 95, Windows 3.1, and Windows NT workstations took just 5 minutes each. The Windows client disk employs a write-protection scheme. Therefore, a backup copy of the disk won't work.

The installation routine writes to the disk, evidently counting down the number of licensed installations of the software.

Not surprisingly, there was no uninstall routine. Installation should be considered a one-way trip with this product.

Basically, KeyServer works by modifying, or "keying," an application's executable, such as WORD.EXE. End-users may freely distribute these modified programs, but they are useless unless the user is logged in to a network running a license server.

This also means that if the license server goes down, or the connection to it is lost, the user can't run the protected software. However, KeyServer does provide for "shadow" license servers that can take over if the main server goes down.

Sassafras has worked with other software vendors that now routinely deactivate their own built-in serialization when their applications are under KeyServer control.

Show of strength

Because the key scheme is useless if users can break it, I was curious to know how strong it was. Comparing a keyed executable program with a copy of the original, I found the files were the same size.

In the keyed program, the software had modified 162 bytes in 10 separate areas of the program. Without the key from the license server, even an assembler guru would have difficulty making the program work correctly. Of course, it's essential that the administrator control all copies of the original programs.

The KeyServer package does let you check out portable keys with time limits for mobile users who are connecting remotely to the network. Unlike the previous release, Version 4.2 extends this capability to both Mac and Windows users.

Security is tight on portable keys. They will not work if moved with the Macintosh Finder, the Windows 3.1 File Manager, or the Windows 95 Explorer. And, if a laptop's hard drive fails, the portable key will assume that it has been moved illegally and will disable itself when the drive is restored. The administrator must then issue a new portable key.

Although KeyServer requires little end-user participation, administrators will need to spend time learning the software's many features, administering the system, and printing management reports showing software usage. Also, administrators must key the executable for each application they want to meter.

The hardest part of installing KeyServer in an enterprise may be gathering together from each department the copies of licensed software to meter.

The manual for KeyServer is clear and includes a complete list of numbered error codes, each with a thorough explanation of the error message along with instructions on how to recover.

Earl Greer is a senior network analyst at a large Texas state agency. His Internet address is egreer@fsztc6c.dhs.texas.gov.

THE BOTTOM LINE

KeyServer 4.2

BOTTOM LINE

This unique metering and licensing package is especially beneficial for those who want to control software usage in cross-platform environments.

Pros: Cross-platform support for Macintosh and Windows; doesn't require a file server; strong security system.

Cons: Requires at least one Macintosh on the network; expensive compared with competing products.

Sassafras Software Inc., Hanover, N.H.; (603) 643-3351; fax: (603) 643-3351; http://www.sassafras.com.

Price: *$680 for 10 clients; $47 for each additional user.*

Platforms: *Windows 95, Windows NT 3.51 and 4.0, Windows 3.x, Macintosh System 4.1 through 7.5.3, PowerPC, A/UX 3.1, Macintosh Application Environment for Unix, Open Transport 1.1.1.*

QUICK BYTE

Raritan peripheral juggles multiple machines

KEYBOARD/VIDEO SWITCH BOX

MasterConsole

If you've got too many computers jammed into too little space in your computer room, then you'll want to look at MasterConsole from Raritan Computer Inc.

This unit lets you control from two to 64 computers from a single keyboard, mouse, and monitor, and it is ideal for centralizing tasks and reducing work space clutter.

The MasterConsole unit I received supported as many as eight machines and proved extremely useful. I connected five PCs to the MasterConsole, and I appreciated being able to switch between machines without having to use multiple monitors, keyboards, and mice.

To manage more devices, you can get either a high-capacity unit or you can daisy-chain multiple units.

Using the buttons on MasterConsole's front panel, I was able to switch between each machine I had connected to the unit.

I could also have MasterConsole automatically switch between PCs.

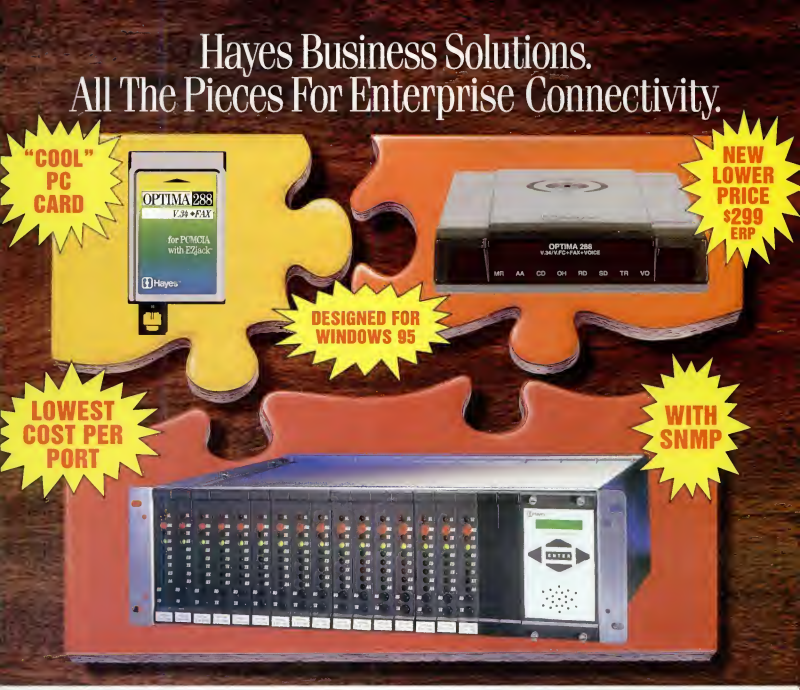
MasterConsole has a hotkey command mode for configuring and using the unit. Using this feature, I was able to set the scan rate for switching the display between the machines I had connected to the unit, as well as switch to a specific computer.

MasterConsole supports IBM-compatible PCs and Macintoshes. New to this version, Raritan has added support for Sun Microsystems Inc.'s Sparc platform.

■ *Raritan Computer Inc., Belle Mead, N.J.; (800) 724-8090; $2,000.*

— Jeff Symoens

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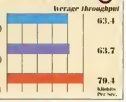
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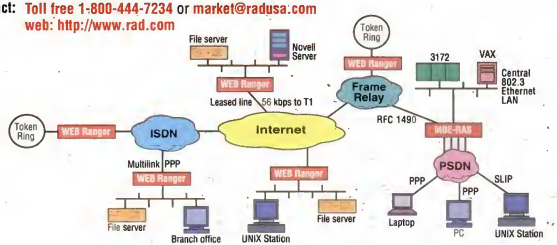


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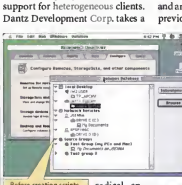
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▸ Network client backup software

Mac-based Retrospect 'Dantzes' two-step with Windows clients

By Jeff Senna

MOST INTEL-BASED network backup software can back up desktop clients as well as network volumes. But this capability often comes at a high price if you need specialized client backup capabilities, such as support for heterogeneous clients. Dantz Development Corp. takes a radical approach to mixed-client network backup using a dedicated Macintosh to back up 32-bit Windows clients. The solution is both cost-effective and easy to use.



Before creating scripts, you must first define volumes within one of the three container types.

Retrospect Remote 3.0 on its own is a stand-alone Macintosh backup package that will back up locally mounted media (removable cartridge, network volumes, etc.). However, adding the Remote Pack 1.0 client software for both Windows and Macintosh clients transforms the Macintosh running Retrospect into a full-featured client backup server.

Providing a suite of flexible tools and an easy-to-use interface, unlike previous versions, the Retrospect offering could inspire network administrators to implement a client backup strategy. And it can easily complement existing LAN backup tools by taking on the task of handling mixed-client backups and leaving standard server-volume backups to other existing LAN backup packages.

Calling the steps

Retrospect on a dedicated Macintosh handles all its backup, restore, duplication, and backup server tasks by running four types of scripts. Client sources can be hard drives, external or removable media, and files in subdirectories (in the Windows environment) or folders (in the Mac environment). Retrospect helpfully provides a way to perform backups of clients that have similar needs (for example, mobile users) with a single script.

Retrospect scripts intelligently handle all aspects of client backups, volume duplication, archiving, and restoring lost volumes. It was simple to create a collection of various scripts, each specific to the type of backup or restore operation I wanted.

An option in the Retrospect Directory allowed me to perform ad-hoc scriptless backups, restores, and volume-duplication operations.

The EasyScript application is especially helpful when first starting out. The Backup Server script, which converts a dedicated backup Macintosh into a continuously running backup server, keeps each Remote client current with backups. Backup Server scripts are particularly useful for accommodating PowerBooks, PC-based laptops or notebooks, and removable cartridges — devices that tend to appear on the network at irregular intervals.

Retrospect's StorageSets (collections of backed-up data stored across a series of like devices) support a wide range of backup media types including tape, ejectable cartridge, optical disc, CD-Recordable (with the optional $150 CD-R driver kit add-on module), and even a local Macintosh server's own hard drive.

However, when using a mix of removable media such as an Iomega Jaz drive, I couldn't select a specific device to hold my StorageSet. Instead, Retrospect Remote will use the first available device according to its SCSI ID, if there is media in the device and it is mounted on the desktop. Still, I appreciated how easy it was to perform other tasks, such as generating reports and managing administrative responsibilities, via an attractive tabbed interface.

Taking control

Installation of Remote Pack was simple on both Windows 95 and Windows NT clients. After installing and rebooting, I activated each Remote client from the backup Macintosh. At this point, Retrospect added each Remote-client database. Clients were thereafter automatically recognized on boot-up so users didn't need to log in to the network.

Retrospect Remote requires Apple's Open Transport, Version 1.1 (or later), network software to provide communication with PCs in a TCP/IP network. Macintosh Remote users are recognized via AppleTalk.

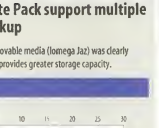
Remote Pack's control panel provides some user-initiated control of how backups occur, and it provides general operational information specific to the client machine. The tabbed workbook design includes four sheets, each providing a different set of options.

End-users can view current backup and restore status; scroll through a history box; set backup preferences such as notification and priority; specify types of access (for example, read-only access), and specify which files or folders they don't want backed up.

Jeff Senna is a technology analyst at InfoWorld. *His Internet address is jeff_senna@infoworld.com.*

Retrospect and Remote Pack support multiple media options for backup

Data throughput of a 100MB file to removable media (Iomega Jaz) was clearly better. However, the slower tape drive provides greater storage capacity.



1. The server portion of the tests was performed on a Quadra 650 with 32MB of RAM running MacOS 7.53 with Open Transport 1.1. The remote client tests were performed on a 166-MHz Pentium-based PC with 24MB of RAM running Windows 95.
2. Backup using an Iomega Ditto tape drive over a parallel port.

THE BOTTOM LINE

Retrospect Remote 3.0 and Remote Pack 1.0

Dantz Development's Retrospect Remote Pack client software (for Windows and Macintosh), coupled with the Retrospect Macintosh-based backup application, provides a robust and flexible multiplatform network-client backup solution.

Pros: Easy-to-use interface; point-and-click script creation; support for wide variety of backup media; inexpensive compared with other network backup software.

Cons: Lacks capability to back up mapped NetWare network drives in Windows NT while running Remote Pack as an NT service; truncates long file names exceeding 31 characters; batch file required to back up the Windows NT registry.

Dantz Development Corp., *Orinda, Calif.; (800) 225-4880, (510) 253-3000; fax: (510) 253-9099; http://www.dantz.com.*

Price: *Retrospect: $150; Retrospect Remote: $99 for five-user pack, $149 for 10-user pack, $600 for 50-user pack. (All prices are estimated street.)*

Platforms: *Retrospect: MacOS 7.5.3 with Update 2.0; Remote Pack: Windows 95, Windows NT 3.51 or later.*

QUICK BYTE

Data integration is not just a technicality with Visio package

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Visio Technical 4.1

The upgrade of Visio Corp.'s Visio Technical from 4.0 to 4.1 is a nearly painless and very worthwhile investment if you have current Visio users, especially if they need to synchronize drawings with information in a database, are moving from Lotus Development Corp.'s Notes 3.0 to 4.0, or work with AutoCAD files.

Visio has made significant progress since its last release. Version 4.1's most important feature is that it now complies with ODBC — the product's biggest drawback when we reviewed it in our April 1 Product Comparison (see page 78). ODBC linking is bidirectional, so changes made in your ODBC database (Microsoft Corp.'s Access or Borland International Inc.'s Paradox, for example) are reflected in the drawing and vice versa.

Previously, you stored basic information in your drawing, using the Custom Properties feature. In addition, you could perform basic calculations. Now, you can store, add, delete, and modify data in your ODBC database (while maintaining the ability to perform basic calculations). Using this valuable feature may be somewhat awkward at first, especially for users unfamiliar with ODBC integration. But it becomes very easy once you've done it a couple of times.

Another new feature lets you batch-convert multiple AutoCAD drawings and symbol libraries, without any intervention once the process is under way. I tested this feature using multiple copies of AutoCAD's infamous "firehose nozzle" standard test-drawing, and it couldn't have been easier to use (even on my 100-MHz, 486-based PC with 16MB of memory, running Windows 95).

More than 500 new shapes include a much-expanded collection of electrical and electronic engineering stencils. The organization of sets of shapes has been improved, as well. Experienced Visio users might find that it takes a little time to locate some shapes, but the new structure will probably make more sense than the old organization to new users.

Version 4.1 supports JPEG and PNG file formats, benefitting those who want to post their drawings to the World Wide Web. And finally, the Lotus Notes/FX connectivity is updated to support Notes 4.0, as well as 3.0.

■ *Visio Corp., Seattle; (800) 248-4746; http://www.visio.com. $299 (estimated street price).*

— David B. Pickens


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▸Enterprise directory and security server

DSS solid in directory services but not global solution

By Maggie Biggs

ADMINISTRATORS managing large heterogeneous environments, especially those already using LAN Server or Warp Server, can find relief from the directory and security services headache with IBM's Directory and Security Server (DSS). Unlike NetWare and Windows NT directory services, which are proprietary and limited, respectively, DSS supports a variety of network OS (NOS) directories and security via the Open Software Foundation's Distributed Computing Environment (DCE) 1.1 standard.

DSS is a fine implementation of directory and security services and currently stands at the forefront of this arena. However, DSS' reliance on DCE and its lack of support for such open standards as X.500 and Lightweight Directory Access Protocol relegate the product to a legacy directory and services solution, not a global one.

IBM's DSS requires LAN Server or Warp Server in order to run



The DSS Cell Registry has information on users and groups in all domains within the cell.

and currently supports only OS/2 Warp and Warp Connect clients. IBM does plan to provide support for additional client platforms such as Windows 95 and NT.

When installing the DSS client, there are two alternatives: the "full" installation runs any DCE server application, and the "slim" installation runs only client applications. There's also an option to install DSS on remote clients.

For my tests, I installed DSS on a Compaq Deskpro XL server with 128MB of RAM, running OS/2 Warp Server. The installation went smoothly, and DSS converted my current domain into a resource domain in a new cell. In addition, DSS migrated all of my user definitions to the new cell registry.

DSS appears as an add-on to IBM's NOS and is easy to navigate and understand, particularly for those already familiar with LAN Server or Warp Server. Using DSS' intuitive graphical interface, you can easily manage users, groups, domains, and cells.

Unlike computing products, which require user or group definitions within each domain to facilitate cross-domain resource access, DSS clearly shines by allowing you to combine multiple domains into a single, larger entity called a "cell." Once you've defined each user in a "home" cell registry, users can access various domain resources within their home cells as well as other cells via trusted relationships.

Every cell you set up with DSS must contain a domain controller, a directory server, and a master security server.

Although I initially set up all of these components within one physical machine, you can run them on multiple machines for better throughput.

(The documentation explains the benefits of certain types of cell construction and when it makes sense to maintain additional security and/or directory replicas on different machines to improve performance.)

Overall, DSS was easy to work with. After setting up my primary server, I added other servers and tested cell definition, establishing additional directory and security replicas as well as setting up the time server (which IBM recommends) for synchronizing clocks on multiple servers.

THE BOTTOM LINE

Directory and Security Server

COST

Those who need to manage multiple domains and maintain effective security measures in large heterogeneous environments may want to consider using this product.

Pros: Distributed Computing Environment (DCE) 1.1-compliant directory service; capability to administer multiple domains from within a single cell; supports multiple OSes; easy to install and learn.

Cons: Lacks support for Lightweight Directory Access Protocol or other emerging directory standards; lacks support for some desktop and network operating systems; consumes additional memory resources on both client and server systems.

***IBM**, Austin, Texas; (800) 342-6672; fax: (800) 426-4329; http://www.software.ibm.com/os/lw-servers/directory/.*

***Price:** $3,999*

***Platforms:** Decision support system: OS/2 LAN Server 4.0, OS/2 Warp Server. DCE 1.1: various Unix operating systems.*

Maggie Biggs is associate technical manager for the InfoWorld Test Center. Send her e-mail at maggie_biggs@infoworld.com.

▸Windows network terminal

Wyse thin client keeps stray applications under control

By Tom Young

ONE OF YOUR users decided to clean a suspected virus off his or her hard drive by deleting some critical but obscure Windows system files. Another tried to install a beta version of Internet Explorer and now the machine is acting "a little strange." And the boss wants to know if you can keep people from sneaking copies of Doom onto their machines.

Are you having fun yet? If you're not, Wyse Technology Inc. feels your pain. Well before the Java cadre has been able to put its act together in the form of an Internet computing device, this long-time manufacturer of computer terminals was helping network administrators keep things together with the Winterm 2000 series of thin clients. It's easy to recommend this common-sense technology, which can help you regain control of the use of system resources by centralizing them. However, you will find performance of the 2500T sluggish over a serial line.

Before you consider the product, consider the architecture beneath it. The heart of the system is Citrix Systems Inc.'s ICA 3 protocol, which drives the required Wyse/Citrix WinFrame server. WinFrame is essentially a customized version of Windows NT Server 3.51 that can host multiple simultaneous Windows computing sessions. For Java-enabled intranet applications, for example, you can install a single browser that everyone can access.

Programs run only on the server — any Intel-based platform, 33-MHz 486 or higher — whereas the 2500T processes only input/output requests. Winterms are compatible with any ICA 3-compliant server, including those sold by Citrix, Insignia Solutions Inc., NCD Software Corp., and Tektronix Inc. Data and programs are stored either on the WinFrame server or on a separate file server.

That means, of course, that if the network or WinFrame server is down, the LEDs might be on but no one will be home.

The 2500T is a 14-inch, 0.28 dot-pitch monitor that supports 16 colors at resolutions as high as 800 by 600 pixels, plus a PS/2-compatible keyboard and mouse. The unit's minimal brains are housed inside the monitor casing. Its gray matter currently consists of 512KB of flash memory, 512KB of video RAM, and 512KB of DRAM for screen-object caching.

Because it has no moving parts, when you power up the 2500T, you won't hear fans whirring or disk drives buzzing. But listen carefully and you'll hear the sweet sound of 80,000 hours mean time between failures (according to Wyse's estimates).

Born to communicate, the 2500T comes equipped with two high-speed serial ports, a parallel port, and a 10Base-T port. Point to Point Protocol (PPP) support lets you dial in to a PPP-compliant remote-access router and connect to a server over a network. This raises interesting possibilities, such as remote users dialing in to local Internet service providers (ISPs) and connecting to your corporate WinFrame server (cheaply!) using the Internet. Even more novel, Wyse is working with several ISPs to provide WinFrame-based applications access over the Internet on a per-hour rental basis.

Even if "rentware" isn't in your future, PPP lets you mix and match remote-connection modes on your LAN, without needing multiple phone numbers and authentication servers. For example, you can let PC users connect as traditional remote-access or remote-control clients while letting 2500T users connect as WinFrame clients via the same router.

Your remote users may complain about speed (my 2500T modem session felt like running Windows on a 386), but they should be able to get their jobs done. That's fair praise, but performance over a LAN is a different matter. Depending on the server, you may notice little or no difference between the speed of the 2500T and the speed of a high-end 486.

THE BOTTOM LINE

Winterm 2500T

COST

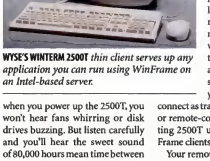
The low-cost Winterm 2500T terminal connects users to applications located on a WinFrame server. Handling screen output and keyboard and mouse calls only while leaving processing and data storage to the server, the 2500T can be a key part of a centralized computing strategy.

Pros: Puts control and management of applications solely in the hands of the administrator; easy to dial in to Internet service providers with built-in support for Point to Point Protocol; fast performance over a network.

Cons: Serial speed fairly slow.

***Wyse Technology Inc.**, San Jose, Calif.; (800) 438-9973, (408) 473-1200; fax: (408) 922-5729; http://www.wyse.com.*

***Price:** $700*



WYSE'S WINTERM 2500T *thin client serves up any application you can run using WinFrame on an Intel-based server.*

Tom Young is InfoWorld's product comparisons editor. He can be reached at tom_young@infoworld.com.

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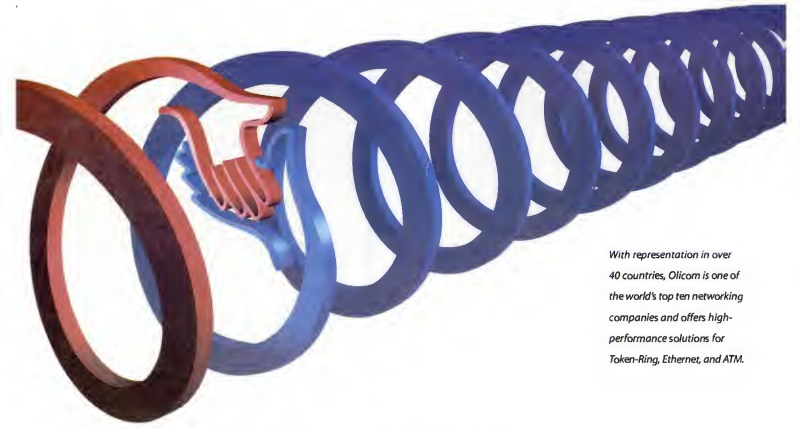
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LAN TALK · PAUL MERENBLOOM

Plan ahead for anticipated network bandwidth needs

IF LAST WEEK'S column got you thinking about your future bandwidth needs, here are a few more thoughts to stoke the fire. Consider that in 1996 most applications of browsers in your LAN are for Internet applications (with relatively few users over a small pipe, say 56Kbps to 544Mbps). In 1997, Web servers are likely to establish a 20 percent to 50 percent presence in corporate LANs, augmenting existing client/server applications.

In 1995 and 1996, most network traffic was and is text and/or binary data moving from a server to a client. Next year, your network will be more widespread, linking PCs, file servers, minicomputers, mainframes, and the public Internet.

As this year closes, Java and ActiveX are all the buzz, and the world-at-large is just discovering the power of true interactivity. It's conceivable, then, that 1997 may be the year in which streaming data types really do consume bandwidth in corporate networks. Guess what? Your network probably doesn't have the bandwidth necessary to support all this neat stuff.

If you're planning to implement any Web technology into your network, my advice is to find out what you need vs. what you might like for your LAN budget. Then allocate resources that will support a 50 percent to 80 percent increase in traffic each year for the next several years.

Why worry about additional bandwidth? The simple answer is that programmers have discovered that bandwidth is cheap and that graphics and sound are cool. The result is an array of new software products (such as PointCast News and RealAudio) that are dazzling users and quickly taking up residence on corporate networks, consuming a lot of bandwidth.

In addition, the use of Web technology for intranet applications within organizations is increasing simple-text (HTML) and graphics (GIF) traffic. This is congesting major network backbones and clogging some routers and bridges.

Consequently, this is creating additional information flow within the organization (a good thing). But, if current trends hold, traffic on these networks could increase geometrically (not such a good thing, if you're unprepared).

The impact? Many local and wide area networks will face brownouts and, in some cases, meltdowns.

As Java applets begin to make their way onto the desktop, you'll be able to measure and even predict the network degradation.

What to do? Start by getting baseline traffic readings now, before the next wave of code hits your network. By using a network monitoring product such as Network General Corp.'s Sniffer, you can chart how your network is currently running and establish profiles of various applications.

Then take this information and consult with router and switch vendors, and have them model the resources you'll need and where.

For my money, a switch is the first device to install in high-traffic areas, particularly near server sites and user workgroups where traffic is naturally the highest. A couple of well-placed switches can go a long way toward remedying network traffic jams and user frustration.

In the long run, you may find it necessary to add Asynchronous Transfer Mode and/or FDDI to your network backbone and upgrade router and switch interconnections to run at 100Mbps (or faster) to keep those connections from being bottlenecks in your network.



Paul Merenbloom is vice president, technology research at Piper Jaffray, in Minneapolis. You can reach him at plmeren@mcimail.com.



I think it's time to blow the whistle on junk e-mailers and call in the cops

If we want to stop junk e-mail, we've got to turn off the tap on what fuels the business. And as we've seen, what really keeps junk e-mail going is fraud. Legitimate businesses don't use it, at least not after they see the kind of responses it brings — nothing except flame mail from formerly potential customers.



As we discussed last week, it's still unclear how existing laws such as the junk fax code apply to e-mail, so right now junk e-mail isn't a crime per se. Even if it were, I'm not sure whom we'd want to do the policing. Fraud, however, is a crime, and there are several law enforcement organizations that can enforce the laws against it, even on the Internet.

As a matter of fact, they've already started. I discovered this in a somewhat roundabout way, starting with a phone call I received a few months back from Michael Bloom, who is the regional director for the Federal Trade Commission's (FTC) New York office. Bloom wasn't calling to talk about junk e-mail; in fact, he was a bit perturbed with me for the way I'd described the FTC's role on how monitor manufacturers advertise their screen sizes (See "Measuring your monitor's screen size can be a game of inches, more or less," May 13, page 64.) I'd suggested that the FTC had decided it was too tough an issue and walked away, leaving a consortium of vendors to come up with its own solution.



I was wrong. I've since learned that the FTC, along with the California Attorney General's office and an action it had brought against the vendors, had a lot to do with pushing the consortium to adopt its new disclosure standards.

In the process of educating me on the monitor issue, though, Bloom offered to serve as a sounding board on other Gripe Line issues where fraudulent advertising might be involved, and we've discussed several in the past few months. So as I began to see how much the spam problem was also a scam problem, I asked Bloom if the FTC could do anything about it.

The answer is yes, and, in fact, it has already started. Since March, the FTC has brought a dozen actions against companies it accused of fraudulent practices on the Internet. These have ranged from obtaining consent decrees and/or fines against companies advertising credit-repair programs across the Internet to halting and freezing the assets of an Internet-based pyramid scheme that had taken in more than $6 million.

"One of the things we were wondering was whether the Internet would produce a whole new type of fraud, but so far it's pretty much proven to be a new and improved delivery system for the same old kind of stuff," Bloom says. "What the Internet does do, though, is deter. It gives the opportunity to engage in fraud by making it so easy to start up and so hard to trace. So it is requiring us to learn some new skills to keep up with them."

The best way to avoid being defrauded on the Internet is, of course, to ignore all junk e-mail propositions, no matter how enticing they may sound. But if you have been victimized by an Internet scam, or if you get a message that you think the authorities should know about, what should you do?

Although you can contact the FTC or your state attorney general, Bloom recommends right now that you visit the Web page of the National Fraud Information Center (NFIC) at http://www.fraud.org. The NFIC, a project of the non-profit National Consumers League, maintains a database of all incident reports to which both the FTC and the National Association of Attorneys General have instant access.

"That's a very good starting point," Bloom says of the NFIC Web page. "The thing I have to emphasize is that the FTC does not arbitrate individual suits. We look for a broad pattern of deceptive practices that merits investigation."

In other words, because the NFIC's data is used both by federal and state law enforcement agencies to help spot the bad guys, reporting suspected scams through the fraud center is a good way to call in the cops. (That doesn't mean you should send them every piece of junk e-mail you get — you can keep copying those to me.) The more Internet-based scam artists get nabbed, the less junk e-mailers will have a viable business.

Ed Foster's Gripe Line examines product quality, customer service, and sales practices. Send gripes to gripe@infoworld.com or call (800) 227-8365, Ext. 710. Join his Gripe Vine forum on InfoWorld Electric at http://www.infoworld.com.

TO THE EDITOR

OUR INBOX WAS STUFFED *with a lot of defiant letters this week. One reader took Bob Metcalfe to task for his assertion that America Online's brief lapse in service is proof of the Internet's impending collapse; another contradicted Ed Scannell's predictions for the future of OS/2; and one letter writer disagreed with Nick Petreley's ridicule of Sun's Java disclaimer. One of the few thumbs up we received was from a reader who agreed that middleware, not browsers, will determine who will control the World Wide Web.*

Collapse or just a minor fall?

IN BOB METCALFE'S latest article, he shows America Online's recent downtime as proof of an impending Internet collapse. [See From the Ether, Aug. 26, page 50.] I am an AOL user myself, and while I found the interruption slightly inconvenient, I hardly consider it a collapse. It is unrealistic to expect anything that large and complex to run 24 hours a day, 7 days a week without some glitches. Any time you do an upgrade to a system, computer or not, such things can happen. If your car breaks down, has the U.S. Interstate system collapsed? If your Internet service provider has broken down, has the Information Superhighway collapsed? Metcalfe has made some very valid points with his articles and has given us lot to watch out and prepare for, but this latest "proof" doesn't mean much to me.

Jim Charbonneau
S. Burlington, Vt.
jchar82@aol.com

It's not the end of the world

I'M GUESSING THAT Nicholas Petreley does not read many component specification manuals. If he did, he'd find that the Sun disclaimer on Java is boilerplate that exists in practically every component specification manual. [See Down to the Wire, Aug. 26, page 97.] Order such manuals from National Semiconductor or Advanced Micro Devices, and you'll find almost identical text in the front of each component specification book.

Why? This is an artifact of our litigious society. When airplanes fall out of the sky, or someone dies while on life support, or your local nuclear power plant has an "incident" (remember Three Mile Island; remember Chernobyl!), the desire to place blame and recover damages results in lawyers' looking to sue anyone who has assets and who contributed in any fashion to the failing system.

Sun's lawyers are being prudent: The issue isn't public relations, it's protecting the company's assets.

Elliott Frank
Boulder Creek, Calif.

The future of OS/2

I READ ED SCANNELL'S Merlin article with interest and a bit of confusion. [See "Warp 4: The Final Frontier!," Aug. 26, page 1.] IBM is positioning OS/2 for the future, and yet it seems that Mr. Scannell and many others have not yet made the connection.

While many informed people seem to think THE BROWSER BATTLE IS NOT REALLY RELEVANT FOR ESTABLISHING CONTROL OF THE WEB. THE MOST IMPORTANT TECHNOLOGY 'BATTLE' CURRENTLY OCCURRING IS THE CORBA VS. DCOM STRUGGLE.

Bhavin Trivedi
New York

that OS/2 is dying, I have to think that evolving OS/2 from a discrete operating system to a part of IBM's network-centric distributed object computing strategy will actually keep it from fading away. It is no secret that OS/2 did not and will not win the desktop operating system battle. Given the futility of fighting that battle again, is it not a better strategy to concentrate efforts where OS/2 does shine?

Mr. Zachman's quote seems to present IBM's Personal Software Products Division as a minor enterprise. Saying that PSP is the only IBM division supporting OS/2 is like saying that Japan is the only Asian country that supports Toyota. While not the whole of Asia, Japan is not a lightweight player in the region either.

Whether OS/2 survives as a desktop OS or as the foundation for a more complete solution for the corporate network environment, IBM cannot and will not totally abandon it. It will evolve like other IBM products to fit IBM's vision of the future of computing.

Richard Frank
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Statelessness of the Internet

IT'S ABOUT TIME someone discussed the statelessness of the Internet as the focus of a column. [See Down to the Wire, Sept. 2, page 82.] Most of the articles one reads in the countless periodicals range in topic from static Web pages and electronic commerce to full-blown transactions over the Internet. But it is rarely mentioned that the stateless nature of the Internet is a seriously limiting factor for the proliferation of electronic commerce.

Without this understanding, undertaking Internet projects could be a costly endeavor

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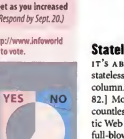
Bigger training budget?

On Aug. 26, we asked if IT budgets were growing; many of you said yes. Now the question is: **Did you increase your training budget as you increased technology expenditures?** *(Respond by Sept. 20.)*

Call (800) 713-INFO or visit http://www.infoworld.com/QuickPoll/quickpoll.htm to vote.

Switching ISPs

Internet service providers claim huge increases in subscribers, but many users are frustrated by inconsistent service. On Sept. 2 (page 48), we asked: Have you dropped or changed ISPs in the past three months?



JAMES MARSHALL

on a road to nowhere. The browser battle is not really relevant for establishing control of the Web. The most important technology "battle" currently occurring is the CORBA vs. DCOM struggle. They who control middleware will control electronic commerce along with the next generation of applications.

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Novell's downfall

I HAVE TO DISAGREE with Michael Vizard's claim that a failure to embrace TCP/IP has been the main cause of Novell's lackluster performance in the past couple of years. [See From the News Desk, Sept. 2, page 3.] Novell has failed in nearly everything it has attempted to do. However, its failure to abandon IPX for TCP/IP has not been a major contributor to its downfall.

There are still a lot of us network managers out here who have no desire to embrace TCP/IP and all its baggage. I find Novell's IPX protocol to be "just what the doctor ordered" in that it is extremely easy to use and its proprietary nature acts as a natural firewall to the outside world.

I don't want TCP/IP on my internal LANs. I do want access to services outside my internal LANs which are available on TCP/IP. This should come in the form of an IPX/IP gateway that will completely hide TCP/IP from our internal LANs, yet still allow us to browse the Web as if we were running TCP/IP. I'll admit that Novell has done a poor job of providing this capability.

I suppose that if I can't beat 'em, I'll join 'em. Until then, keep TCP/IP out in cyberspace!

Mike Scott
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mikescott@primary.net

MacOS on a Toshiba?

AFTER READING Dave Flory's letter on Win95 frustration in the August 26 issue — "...when I want to do some work, any work, I go to the Mac" [see To the Editor, Aug. 26, page 60] — I turned the page to see a full-page ad for the new Toshiba Tecra. It looks like Dave and I have company. The Toshiba's 12.1-inch display features a Macintosh QuickTime window of a speeding sports car. I love it.

Mark Vallon
Gaithersburg, Md.

Taking risks

I ENJOYED BOB LEWIS' recent article on risk-taking. [See IS Survival Guide, Sept. 2, page 54.] We have a saying here among those of us trying to change things with a computer and some data networking: "Do you know how to spot a pioneer? He's the guy lying on the ground with all the arrows in his back."

Geoff Charest
New York

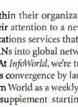
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FROM THE EDITOR IN CHIEF · SANDY REED

Telecom World spans the convergence of computing and telecommunications

Thanks to everything from the Telecommunications Act of 1996 to digital satellite systems and the Internet, telecommunications is becoming one of the dominant forces of enterprise computing. IS executives who once focused primarily on linking the many islands of automation that had grown up within their organizations are now turning their attention to a new wave of telecommunications services that can be used to extend LANs into global networks.



At *InfoWorld*, we're turning our attention to this convergence by launching Telecom World as a weekly demographic supplement starting Oct. 7. As long-time champions of new technology in the enterprise, we are uniquely positioned to provide a bridge between the data-centric view of computing today and the global, multimedia-centric computing needs of tomorrow. Driving those needs is the fact that most workers view all of the resources in the world as extensions to their local disk drives. But searching the World Wide Web is only one of the advances that can be achieved by integrating telecommunications services with computing technology. Telecom World will include product news, news analysis, technical updates, case studies, and other articles designed to help IS managers maneuver in this new world.

This week, we detail the complexity of that world in our Enterprise Computing feature on page 69. As that article notes, corporate IS and telecommunications executives planning their telephony and networking strategies face futures that are simultaneously intriguing and uncertain, in an environment where voice communications are being carried over the Internet, cable TV companies want to start providing telephone dial tones, and new technologies such as digital satellite systems promise to redefine the meaning of the word "infrastructure."

Telecom World will be managed by Senior Editor Jessica Davis. She is based in our San Mateo, Calif., office and will work with both staff writers and outside experts. We will base one of those writers in Washington, where the Federal Communications Commission is adding the regulatory meat to the bones that Congress created in passing the Telecommunications Act. Send ideas for topics you'd like us to cover to jessica_davis@infoworld.com.

Telecom World is the third editorial supplement distributed to a subscription of our 310,000 subscribers. Initially, it will be delivered in print to 100,000 *InfoWorld* subscribers whose responsibilities include WAN services and data communications. The other two sections sent to subscribers based on demographics are Intranet World and Networking Product Reviews. The entire text of all three demographic editions is also posted on InfoWorld Electric (http://www.infoworld.com) and available to anyone there.

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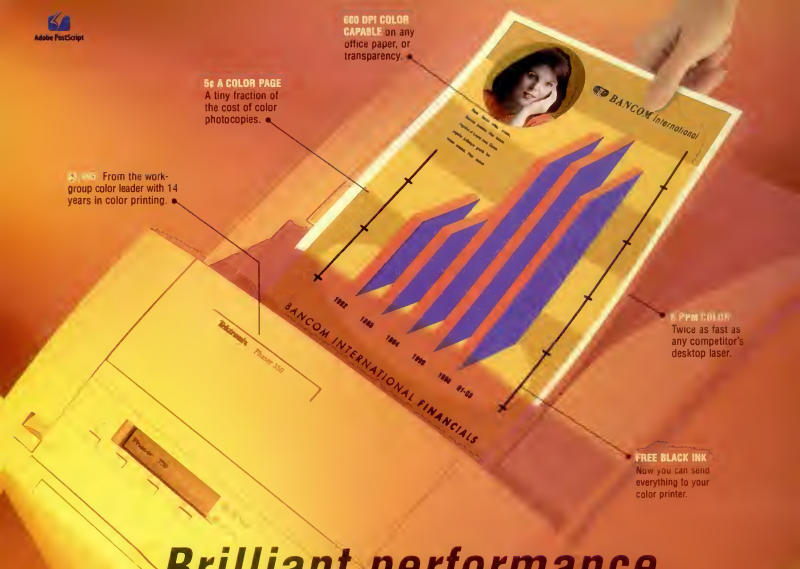
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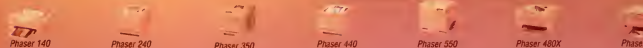


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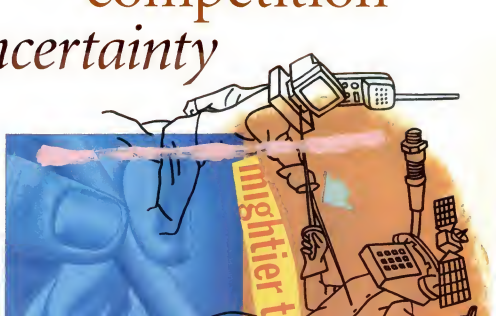


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Dialing up competition and *uncertainty*

By Paul Karon

What may prove to be the telecommunications deal of the decade took place earlier this year when Congress passed the Telecommunications Act of 1996, a sweeping piece of legislation intended to deregulate every part of the electronic communications business, from the last mile of local phone service to access to the World Wide Web.



As expected, the law has sparked controversy within the telecommunications industry. Supporters say the Telecommunications Act will be good for consumers, but critics suggest it will hurt more business and residential customers than it helps by raising prices and lowering the quality of service. (*InfoWorld* will be expanding its coverage of the telecommunications industry with a new Telecom World demographic edition. See page 67 for more information on the new edition.)

"The Telecommunications Act of 1996 could deliver the exact opposite of its original goals," says Nicholas J. Lippis III, president of Strategic Networks Consulting Inc., a Rockland, Mass.-based consulting company that specializes in the networking industry. "The end state of the Telecommunications Act of 1996 could result in a U.S. network similar to those in Europe with high prices, slow speeds, and abysmal service for all but the largest corporations."

Deregulating the local phone business is expected to result in plenty of offerings and just as much confusion

But many industry observers applaud the new legislation, saying it will have the desired effect. They're confident it will foster competition in every area of the telecommunications business, creating an environment where the costs of communication will eventually go down as services increase.

"Basically, I think the Telecommunications Act of 1996 heralds a new era of competition for all types of communication," says Jack Rickard, editor and publisher of *Boardwatch Magazine*, a Littleton, Colo., publication that follows the Internet industry.

"It extends the competitive model to all levels of the communications industry — it's going to be a more complicated world where the consumers will have more options for less money," Rickard says.

Both critics and supporters of the legislation agree that during the next two years there certainly will be fluctuating prices, a range of new services, and plenty of instability. To that end, observers say that IS managers need to protect themselves from this instability by keeping their options open.

AT ITS HEART, Although the Telecommunications Act applies to many areas, its heart is the deregulation of local phone service: It sweeps away the last vestiges of monopoly that have remained since the breakup of AT&T a dozen years ago. Under the new law, local service providers will have to open up their own systems and infrastructures to other companies, such as AT&T or MCI Communications Corp., that may want to get into the business of carrying local calls. In turn, the regional Bell operating companies (RBOCs) and other local service carriers will be allowed to get into the long-distance business.

No one argues with Congress' intention to deregulate the business in the hope of fostering a scrappier, hungrier, and faster telecommunications industry that offers consumers better service and new technologies, all in a healthy environment with competitive pricing.

But few things are that simple. Trying to direct the development of the telecommunications business, with the complexities inherent in its vast size, the number of existing and emerging technologies that must be integrated, and its sheer and immeasurable importance to businesses and individuals, could be one of the toughest jobs ever for the Federal Communications Commission (FCC).

In this environment — where the Internet is carrying

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Lots of vendors seem to have part of the answer. Only IBM has the complete solution: our complete Enterprise Communications family of products. Personal Communications AS/400 and 3270 (PCOMM), for the easiest way to connect all your DOS, Windows® 3.1, Windows NT,™ Windows 95® and OS/2® clients to all your S/390,® AS/400® and System/36™ hosts. And our rock-solid IBM Communications Server for OS/390,™ AIX,® OS/2 and NetWare,® provides flexible, scaleable, multiprotocol gateway support via TCP/IP and SNA.

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voice communication , where cable television companies are looking to offer telephone dial tones, and where new technologies, such as digital satellite systems (DSSes), have the potential to eliminate the need to wire that last mile into a home or business — corporate IS and telecommunications managers planning their telephony and networking strategies face futures that are both intriguing and uncertain.

The Telecommunications Act of 1996 represents the dropping of the other shoe after the 1984 divestiture of AT&T, which demonopolized long-distance service. At the time of the AT&T breakup, Rickard recalls, many analysts bemoaned the uncertain destiny of the telecommunications industry, and they expressed concern that the breakup would wreak havoc on the business and on the quality of service that people had come to expect.

But instead of wrecking telecommunications, Rickard says, the breakup proved to be overwhelmingly positive.

"Almost all the disadvantages cited proved to be false — almost comically so," Rickard says. "And long-distance prices dropped right away and continued [to drop] over the next 12 years."

Rickard now expects the new legislation to have similar results. That means local phone service providers will have to get used to something they've never experienced: competition.

UP TO THE FCC. Both critics and fans of the new legislation are quick to point out that the law will have no effect — bad or good — until the FCC formulates the regulations that will provide the muscle and teeth for the law's spirit.

"Our job is to do the detail work and take the general directives of Congress and make sure that the benefits are realized," says Kevin Werbach, an FCC spokesman.

The task is expected to take about two years and will involve public hearings, industry and public comment, and redrafting of the regulations. During that time, the FCC will solidify its various rules. Numerous telecommunications companies will duly challenge some of those rules in court, and individual states will have to figure out how to apply the federal rules to their local technological and business environments.

The new law contains three major separate proceedings that will require approximately 80 different rulings, according to Werbach. Government attorneys and bureaucrats at the FCC have the unenviable job of writing those rules.

In early August, the FCC released the first round of regulations: a 700-page document referred to as the interconnection order. It sets out the conditions under which long-distance companies can get into the local phone market.

In November, the FCC is expected to release proposals for the restructuring of the regulations controlling the access fees that long-distance companies pay to the local phone companies, currently a $20 billion annual business. The final rules should be out next spring.

The FCC is also currently working with state officials on the universal service part of the law, which is the section that seeks to ensure that all Americans have access to decent telecommunications resources. The FCC's recommendations should be out in November, and the actual rules are expected by May 1997.

During this period of regulatory restructuring, every individual and corporation that makes phone calls, accesses the Internet, or watches cable television (in other words, everyone in America) will have to live, work, and make business plans during a period of uncertainty. Prices will fluctuate, different phone companies will start to shift into new areas and offer new services, and all sorts of companies you've never heard of will call you up to offer deals on long-distance, local phone service, and Internet access.

FAT WITH POTENTIAL. There is, however, even debate about the effect of the law on the Internet business, with critics voicing fears that the Telecommunications Act of 1996 will allow the big phone companies to squash the fledgling Internet service provider (ISP) industry.

Internet backbone builders such as Apex Global Information Services Inc., welcome the new law, according to Phil Lawlor, president of the Dearborn, Mich.-based ISP.

"From the Internet perspective, having the RBOCs and long-distance companies entering the Internet is a validation of what the ISPs have been doing for years," Lawlor says.

Meanwhile, the Internet market seems ripe with potential. The number of ISPs has continued to grow to more than 3,000 companies, according to the latest counts, even though only 4 percent or 5 percent of the population has Internet access, which presumably leaves a great deal of potential available in the Internet marketplace.

TURMOIL ABOUNDS. No one can predict precisely how the telecommunications business will respond — whether service and prices will improve or degrade from the point of view of the average consumer.

"There's so much turmoil right now, it's hard to know what the prices are going to be from month to month," says industry analyst Mark Anderson, president of Technology Alliance Partners, a technology research company in Friday Harbor, Wash.

But observers recommend special caution over the next few years, such as not signing any long-term contracts.

"You've got to be careful because you're going to have people offering services they're not experienced in," says Courtney Munroe, senior vice president at Probe Research Inc., a Cedar Knolls, N.J.-based consulting and publishing company that covers the telecommunications industry.

That doesn't necessarily mean IS managers shouldn't do business in new ways, but they should be extra careful to obtain service or financial guarantees from providers who are new to their businesses — just like the old days when long-distance service was first deregulated.

Also central to all the uncertainty in telecommunications is the unpredictable nature of innovation and the adoption of new, high-bandwidth technologies.

Most analysts agree that new technologies are coming — something has got to take the bulk of the country beyond the top speeds of today's analog phone lines — but no one claims to know which methods will flourish.

Cable modems, for example, with their 4Mbps throughput rates, are one obvious contender.

And DSSes, which will be offering some broadband Internet services along with the television programming they were originally designed for, have been growing at a rapid rate. Already they have about 1.5 million users, and the price of a DSS dish has dropped from $700 a few months ago to $200.

There are other telecommunications issues that will be affected by the new law as well: wireless and high-speed wireless systems that could reach T1 equivalent rates. There's also the developing Personal Communications System (PCS) spectrum — a kind of short-range cellular phone service. The FCC is auctioning off the PCS spectrum now.

There are also other solutions that are further out but have the potential to change the nature of the market. Teledesic Corp., based in Kirkland, Wash., for example, which has plans to surround the earth with 1,000 satellites, plans to provide T1 bandwidth access speeds to nearly all of the earth's surface.

LINES ARE A-CHANGIN'. So will the Telecommunications Act of 1996 hurt businesses or help them? Which side of the argument will prove to be correct? Probably both: The lines, they are a-changin'. A certain amount of upheaval is certain anyway, with or without the Telecommunications Act of 1996.

Some of the more cynical — or realistic — observers say that any law passed in an election year is heavily weighted with political objectives that it simply cannot only be in public interest.

"Those are all noble goals [in the Telecommunications Act of 1996], but one should be cautious of anything passed in a presidential election year," says Ken McGee, analyst at the Gartner Group Inc., in Stamford, Conn.

But most analysts agree that the real effect of the Telecommunications Act of 1996 is a matter of timing and pacing.

"I think the aim of the Telecommunications Act is a great idea: Expand and open up the market," Strategic Networks' Lipps says. "The point is, you can't go from a regulated monopoly to a total free-for-all right away."

Paul Karon is a free-lance writer based in West Hollywood, Calif.

BILL COULD DIVIDE TELCO CUSTOMERS INTO HAVES AND HAVE-NOTS

For local phone carriers, the Telecommunications Act of 1996 will force them to open up access to their networks, stimulating competition and innovation. But some analysts say this could result in higher bills and less investment by local carriers in advanced communication technologies.

Because the Telecommunications Act requires local telephone companies (telcos) to let competitors use the lines they installed, the local service providers are put into the odd position of helping their direct foes, according to Nicholas J. Lippis III, president of Strategic Networks Consulting Inc., a Rockland, Mass.-based consulting company specializing in the networking industry.

"One of the few competitive advantages carriers have in owning the network infrastructure will be erased once they are forced to allow competitors access to their expensive plant," Lippis wrote in a recent newsletter.

This could lessen the incentive of the local telecommunications companies to invest in infrastructure such as new lines and new technologies to all but the cream of the customer base — that is, only the largest 10 percent of corporate users. The result of this, Lippis says, will be competitively priced high-speed access for densely populated corporate sites. However, residential and business customers outside those core areas of investment will have to suffer the ills of what Lippis warned will be an increasingly antiquated plant.

This is central to the controversy surrounding the Telecommunications Act: Who will build the new technologies that will push beyond the analog bandwidth ceiling rate of about 33.6Kbps?

"Local access remains the line of demarcation where network traffic either hits a speed bump or rings up an astronomical monthly bill," Lippis says.

Although the local service will be up for grabs under the new regulatory environment, it is probably overly alarmist to think that the local companies will forsake investment in their infrastructure, according to analyst Ken McGee, vice president of Gartner Group Inc., a Stamford, Conn., market research company.

Though McGee himself believes that the Telecommunications Act could drive prices up and force a consolidation of the industry, he doesn't think the local service providers will cease to upgrade their systems.

"We're talking about some of the largest public companies on earth," McGee says. "They have enormous incentives to continue the revenue and dividend streams that they stand there and do nothing is a recipe for one's own demise."

There already, of course, are differences in the breadth of services available in different markets around the country.

"It's true the cream of the market is the top 10 percent of the urban business — that's the gold," says industry analyst Mark Anderson, president of technology research company Technology Alliance Partners, in Friday Harbor, Wash. "If you look at the current list of technologies available around the country to provide broadband communications, there are geographic distinctions."

For example, Anderson says, T1 and T3 lines are concentrated in urban areas.

But these geographic distinctions are still just a small part of the story, Anderson believes, citing technologies such as Digital Satellite Service where geographical issues such as the "last mile" of wiring into the home don't apply at all or cable modems, which have already gained widespread geographical penetration.

Also, these more pessimistic views of the Telecommunications Act don't sufficiently take into account the effects of vast market changes such as the Internet, according to industry observers.

"I don't think [the pessimists] understand the force behind the Internet as a product," Anderson says. Interest in the Internet will fuel a market demand great enough to convince many companies to ensure that sufficiently thick bandwidth pipes make it into every neighborhood and every business, he says.



Revolutionary

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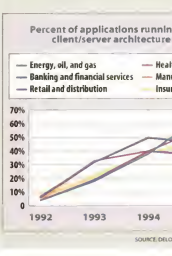
MANAGER'S BOARD BULLETIN

YET ANOTHER PARADIGM SHIFT? Object browsers will forever change computing and emerge as the standard means of accessing and distributing object-oriented business applications over the Internet, according to Input, a Mountain View, Calif.-based market research company. Spurred by Netscape Communications Corp.'s recent announcement that Java-based object request broker (ORB) technology will be woven into the next generation of Netscape Navigator, Input predicts Web browsers that incorporate the Internet Inter-ORB Protocol will help the Internet evolve from an information-centric environment into an application-centric environment. Input foresees a new enterprise computing paradigm where applications will be built in real time from components on network computers running object browsers, significantly decreasing development, delivery, and maintenance costs. Later this year, Input will release a detailed analysis on object browsers. For more information, contact Input at (800) 338-2066.

100,000 AND COUNTING. By 1989, Hewlett-Packard Co.'s desktop environment had become so large that it was becoming increasingly difficult and costly to manage. So HP initiated a Common Operating Environment (COE) program designed to address issues associated with individually configured desktops that were networked either locally or not at all. Earlier this year, HP surpassed a milestone of sorts, as more than 100,000 desktops, including PCs and Unix workstations, were linked via HP's COE. The system performs automatic software updates and provides employees with a common set of online productivity tools and company information. HP believes that the COE infrastructure has helped it increase desktop reliability and improve IS support.

Client/server gets energized

The energy sector showed the highest growth rate in the use of client/server applications in a survey of 431 CIOs in the United States and Canada



SOURCE: DELOITTE & TOUCHE LLP

S. DORAY (INFOWORLD)

IS SURVIVAL GUIDE · BOB LEWIS

A few insights into the relationship between IS and end-users

QUESTION: *How can you tell a politician is lying?*
ANSWER: *His lips are moving.*
— Old joke

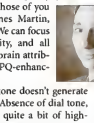
THIS, OF COURSE, is an election year, so we're subjected to the usual array of ridiculous, mutually contradictory promises, none of which will last beyond the inaugural ball. They must think we're smoking something and probably think we inhale, too.

But Bill Clinton and Bob Dole aren't the only ones to make promises in their jobs. (And you thought connecting this lead to an IS management topic would be a stretch.) Haven't you, in a tight spot, ever made a promise in a meeting only to go back to your office wondering how you're ever going to deliver on it?

This week we begin a series on interaction between IS and the end-user community. Let's set the stage with some basic insights.

■ *Insight No. 1.* Visibility equals dissatisfaction. When the quality movement picked up steam, we all heard about delighting rather than just satisfying customers. Most of us in IS shook our heads sadly, knowing the futility of this goal (along with the unfortunate "internal customer" concept that goes with it). The problem? "Quality" lumps lots of completely dissimilar issues into a single amorphous lump. We can mitotically divide this lump into two smaller chunks by recognizing that some forms of quality are only recognized by their absence, while others really do delight customers.

Genuine Corinthian leather delights a certain group of automotive customers. We can call this kind of quality "positive quality" (PQ, for those of you who, such as James Martin, enjoy acronyms). We can focus ingenuity, creativity, and all those other right-brain attributes on generating PQ-enhancing ideas.



Telephone dial tone doesn't generate customer delight. Absence of dial tone, though, generates quite a bit of high-decibel-level conversation. We will call this kind of quality, where you're only visible when things go wrong, negative quality (NQ). A lot of what we do falls



into the NQ category.

■ *Insight No. 2.* Stealth end-user satisfaction is needed. IS interacts with the end-user community at all levels. Executives want you to focus on big strategic projects. Middle managers want you to build enhancements to their core information systems. Secretaries need help recovering their trashed memos. These requirements compete for resources, of course, and although the executives may agree to some trade-offs in principle, those agreements vanish like vacation money when exposed to the sunny disposition of a secretary with a damaged document. (Rule No. 37 of organizational behavior: Executives are terrified of secretarial dissatisfaction.)

If you expend visible effort supporting day-to-day end-user computer use, executives and middle managers will wonder who's taking care of their strategic initiatives and production system enhancements. If you don't take care of the day-to-day *Sturm und Drang*, they'll wonder — aloud — if you're competent to handle the big issues when you can't even take care of their secretaries.

So you need stealth efforts for optimal NQ.

■ *Insight No. 3.* IS isn't the expert when it comes to personal computers. PCs are more than a way to reach the company's business systems. They're more than a universal information access utility. They're more than a general-purpose tool for improving effectiveness.

For some employees, they're a hobby.

A friend of mine earned a doctorate from his hobby, which happened to be creating a stochastic model of international banking. (He showed it to a friend who happened to run a graduate program in industrial engineering over lunch one day and had his doctorate a week later.)

Some people put a lot of effort into their hobbies. They read a lot, experiment a lot, think a lot. Within their self-imposed boundaries, they know more than you do. Disparage their expertise at your peril.

These insights represent the landscape. You have to build on it. Next week we will start to explore ways you can do so.

Bob Lewis is a consultant, not a landscape architect, with Perot Systems Corp. Send him e-mail at robert.lewis@ps.net, or join his forum at http://www.info world. com.

Calendar

October

7-11 *Symposium/ITxpo, Orlando, Fla.* Gartner Group Inc. conference seeks to explore issues of future technology. Contact Kristen Hyland, (212) 704-8274 or khyland@edelman.com.

8-10 *Unix Expo Plus, New York.* Unix and cross-platform conference. Contact Bielnheim Group Inc., (201) 346-1400.

14-16 *Conference on Control, Audit, and Security of Information Systems, Boston.* Learn from front-line audit and security practitioners. Seminars focus on expected technologies to emerge over the next decade. Contact MIS Training Institute, (508) 879-7999 or mis@mistl.ccmail.compuserve.com.

15-18 *Revitalizing Application Delivery: Bridging to the Customer, San Francisco.* Meta Group inc. conference on application development strategies. Contact Meta Group, (203) 973-6700.



16-17 *1996 Selling Chain Expo, Boston.* Conference on sales and marketing software. Contact DCI, (508) 470-3870.

20-23 *The International CorelDraw User Conference, Baltimore.* Annual user convention for graphic artists, Webmasters, and electronic publishers. Contact R. Altman & Associates, (888) 372-9669 (toll-free) or http://www.altman.com.

20-25 *17th Global Electronic Document Systems Conference & Exhibit, Orlando, Fla.* Keeping pace with document management. Contact Xplor International, (310) 373-3633.

29-31 *WindowsWorld '96, Dallas.* Exhibit and conference focused on the Windows platform. Contact SoftBank, (617) 433-1500.

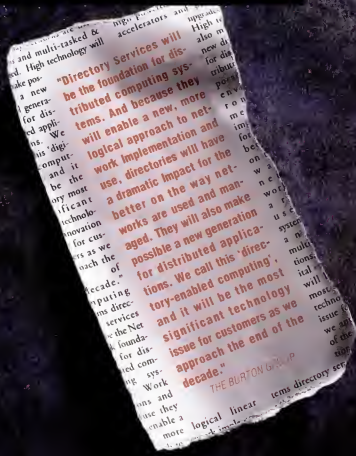
November

3-8 *Oracle OpenWorld, San Francisco.* For developers and users, conference offers seminars and gives previews of future technologies. Contact Oracle, (800) 304 4664 or http://www.oracle.com/openworld.

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Of The Enterprise.

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HBO InfoNet helps sales team bring you a front-row seat

■ Cable channel's intranet, data warehouse deliver account and marketing data to eight regional offices

By Deborah DeVoe

THE NEXT TIME you sign up for cable services, Home Box Office (HBO) plans to have a better shot at getting your order.

Though the New York-based cable giant had no problem pumping shows and movies to subscribers, HBO was less successful at channeling information to its sales and marketing force and to its employees companywide.

HBO first implemented a data warehouse six years ago that provided for queries of data loaded from its CICS-based transaction systems. It is now upgrading its query and report tool and implementing a company intranet, dubbed HBO InfoNet, to further improve data delivery.

The HBO sales staff doesn't sell directly to consumers, but works with regional cable operators who sell subscriptions. HBO, as a programmer, provides marketing campaigns to the cable operators to promote HBO, competing for advertising time on the cable channels against other programmers and local advertisements.

CASE STUDY

The marketing campaigns range from free previews to one month of free service to free installation, all available for the cable operator to use. HBO will also produce customized direct-mail pieces that feature the cable operator's name, logo, and its selected promotion.

Although the campaigns may generate increased HBO subscriptions, they also generate reams of numbers and data for account executives to track.

"We're looking at subscription numbers, data on marketing participation, campaigns used, the kind of marketing support given to cable operators — all in a data warehouse," says Sharyn McClosky, director of sales and marketing applications in HBO's IT department. "We needed a query tool that would allow our salespeople to get into all of that data."

"We learned very quickly that our sales staff are not programmers, but what I would call casual users," McClosky adds. "We learned that it wasn't reasonable to expect them to understand the databases available and how to join them together and build queries."

With 250 sales employees spread over eight regional offices, HBO also needed a tool that would ease distribution of the information.

TOOLS OF THE TRADE. Six years ago, users were able to access mainframe data via a still-existing transaction system called Regional Information Collection System, a collection of CICS-based transaction systems. Employees were able to enter and receive information using inquiry and reporting capabilities but were limited in manipulation of the data. To provide the capability to query across the transaction systems, HBO developed a data warehouse.

Data from the company's MVS-based mainframe is now loaded onto a Unix-based server running the Oracle7 database. The data — such as orders generated from a direct-mail campaign — is put into Oracle tables that can be queried.

HBO first chose Brio Technology Inc.'s DataPrism as its query tool because it needed a cross-platform tool that worked well with the Macintosh interface.

"We're a Mac shop, and DataPrism was designed with the Macintosh platform in mind," McClosky says.

DataPrism eased query writing, but it was necessary to load the queries onto each client, creating a distribution headache for the IT department.

"Our data warehouse changes all the time as we're always adding more information or new fields," McClosky says. "When that happens, sometimes it means writing a new query or rewriting a query to include the new information, which then has to be distributed to 250 people."

In addition, employees required varying ways of looking at data. An account executive may want to see how accounts are doing, while an account director may want to know how a cable system owner, such as Viacom, is doing across the country or solely in a specific region.

"We had hundreds and hundreds of queries over the last several years that were developed," McClosky says.

In December of 1994, Brio merged DataPrism with another tool, DataPivot, says Kathy Waite, director of marketing at the Palo Alto, Calif.-based company. The resulting BrioQuery Enterprise 3.0 still provides graphical tools for query creation and generation, but also supports a repository for queries, which eliminates the need to distribute queries to users. Reporting features brought in from DataPivot also add a considerable boost to the product, Waite notes.

After evaluating the upgraded Brio software and competing products last year, HBO decided to tune into BrioQuery 3.0.

"Now users just need a copy of BrioQuery to access queries stored in a central repository in New York," McClosky says.

As a result, users have speedier access to new and updated queries, and the IS department saves considerable time that was previously spent distributing information.



PULLING NO PUNCHES, *HBO's Sharyn McClosky put a little muscle behind her intranet by calling up software from Netscape and Brio Technology.*

HBO implemented the switch for its sales and marketing forces in the fourth quarter of last year and is continuing to roll out Brio-Query to other users, including those in financial analysis and the direct broadcast satellite group, McClosky says. The company is also currently upgrading users to Version 4.0.

The IT department still develops the queries, which are very much the same as those created with DataPrism. But the department can now also customize reports using the pivot, charting, font, and subtotaling features to provide information to users at a presentation-quality level.

"People don't want pages full of numbers. BrioQuery's charting capability is going to go a long, long way," McClosky notes.

SHOW OF SHOWS. In fact, the entire sales force is now supported by two part-time IS employees that were previously part of sales and marketing operations. The sales force can send them e-mail and request a new query that can be turned around in just a few hours, McClosky says.

Being an expert at content delivery, HBO hasn't stopped there. The company developed an in-house intranet during the past year to deliver information companywide.

HBO InfoNet is based on software from Netscape Communications Corp. and currently provides general company information, such as company policies and job postings, and also delivers specific information for departments. For example, the sales force page displays all the available marketing materials, which sales employees can dial up to view, and even download clips.

"The challenge with InfoNet was that the marketing department had to change its tactics for delivering the information. But HBO is a team-oriented company and pulled it off," McClosky says.

The challenge is to keep the information up-to-date.

HBO is also working to integrate BrioQuery with Netscape so queries can be launched from a customized HTML-based intranet page, and is just starting to roll out the technology to its sales force. (Users can already launch other applications, such as Microsoft Corp.'s Excel and Word, from the intranet.) The integration will also assist in delivering new queries to users.

"We're writing a front end that provides a customized menu to each person that logs on, which will show queries they like to use and are authorized to use. New queries will automatically show up, and we won't need to e-mails anymore," McClosky says.

The task, however, is not an easy one.

"We needed to build in Oracle a profile of each person. For example, you're a salesperson in a regional office. You're interested in your own accounts but don't want queries of other accounts," McClosky says.

The profiles also have to provide a level of hierarchy and security.

"Constraints are necessary, depending on the employee's regional office and title. We had to build a profile system so when you open Netscape and go to InfoNet's application area, you're required to log on. Then it gives you a list of queries you have access to," McClosky explains.

Integration of BrioQuery with HBO InfoNet is still in development, with hopes to roll it out this month. HBO also plans to further leverage its intranet by re-engineering some CICS legacy applications that will use InfoNet as a front end.

A final word from McClosky before you change the channel: "The idea is to find the best tool to solve a business problem. What makes HBO as successful as we are is that we're able to respond to changing business requirements — and with BrioQuery, we're getting a lot more done with the same amount of people."

Distributed teamwork

Challenge: Getting the right information to its sales and marketing forces and to its employees companywide.

Solution: HBO InfoNet — an intranet based on software from Netscape Communications Corp. and Brio Technology Inc.

Benefit: An internal information distribution system that is not only actually used by employees, but encourages HBO's teamwork philosophy.

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DEVELOPERS' ADVOCATE · KEVIN STREHLO

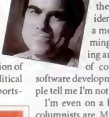
If you keep looking for credentials, you'll miss my point

DON'T THINK YOU know what you're talking about. ... What are your qualifications?" It was a tough question for me from a reader who goes by the e-mail handle of "The Cherbin."

About a week later, a writer and programmer I admire, Warren Keuffel, asked the same basic question. As writers, what is the source of our credibility, Warren asked, if we aren't full-time programmers and part of a development team striving to improve?

After a night of soul-searching, I decided Warren and I are very qualified to write about programming practices.

I may be deluded about this, but I think this column is in the grand tradition of journalistic commentary: The best political observers aren't politicians, the best sports-



writers aren't top athletes, and the best historians aren't presidents or royalty. True, I am not a member of a large programming team. But I've been studying and writing about the world of corporate IT — especially software development — for years, and people tell me I'm not that bad at it.

I'm even on a bit of a mission, as many columnists are. My mission is to help propel the craft of programming through the equivalent of the industrial revolution.

For years I thought that improving programming was just a matter of applying the right tools to the problem. But when I started hanging out with technical programmers — the folks whose software is embedded in something else, such as a car, an airplane, or some electronic gear — I began to see what was really happening. I learned that the key is not necessarily tools, although they can be indispensable. The real problems emerge when programming teams lack a well-thought-out, repeatable, measurable way of *applying* the tools of the trade. It's only by making an active effort to understand what your processes are and measuring how well you are doing that you can make real progress.

I talk to a lot of organizations that have undertaken major efforts at software process improvement (SPI). Many of those organizations come from the technical programming community or make software that is sold as a stand-alone, shrink-wrapped product. One of the things this column can do is pass on the lessons they've learned.

Surprisingly, few corporate application development groups have learned much from the technical programming community or successfully applied the principles laid down in the leading canon of SPI, The Software Engineering Institutes' Capability Maturity Model (SEI's CMM).

And that may make me as qualified as anyone to write this column. In essence, the SPI lessons learned thus far may not map well to the problems faced by *InfoWorld* readers, who tend to be part of corporate IS. More on that mismatch in a future column.

Still, IS shops can learn from SEI's CMM. I am running myself through *A Discipline for Software Engineering*, the Watts Humphrey textbook that distills the CMM into software practices that apply to an individual programmer. I endorse Humphrey's notion that programmers should work through it, of course one day a week for the four months or so it would take to complete the textbook.

I'm usually writing or specifying a program of some sort, and *Discipline* has improved my ability to predict how long a programming project is going to take. I've even reduced my cycle time.

Of course, no one person has all the answers to the crisis in software productivity. But maybe together we can figure this out. Let me know what you think.

Kevin Strehlo is director of product marketing at Continuus Software Corp., in Irvine, Calif., and a former executive editor at InfoWorld. *Write to him at kstrehlo@mcimail.com, or join his forum at http://www.infoworld.com.*

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INFOWORLD ELECTRIC WEEK IN REVIEW

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DAY'S NEWS

Week in Review keeps all those hot topics from the past week at your fingertips.

Thursday July 18, 1996

- Dell cuts prices of its back-end line of business PCs
 Posted at 1:37 PM PT
- MCI moves into tech in two ways
 Posted at 3:23 PM PT
- UUnet buys Canadian Internet service provider
 Posted at 1:29 PM PT

Wednesday July 17, 1996

- Fifty workers join Microsoft in proposal of Web-based network management standard
 Posted at 1:25 PM PT
- Intel, Microsoft strike cease-licensing deal to promote Internet-based collaboration
 Posted at 11:04 AM PT
- Apple keeps company in skewer pen in June quarter
 Posted at 6:48 PM PT
- Netscape: Next ink pact that will expand SiteSpot's back-end connectivity
 Posted at 6:36 PM PT
- CompuServe expects to show loss for quarter
 Posted at 6:28 AM PT
- Sybase shoe Sybase Internet mail server
 Posted at 12:47 PM PT
- AOL eases switches for into local news market, CompuServe due to join in
 Posted at 1:41 PM PT
- IBM wrestle in with intranet seminars
 Posted at 5:26 PM PT

Tuesday July 16, 1996

- IPC, Time Warner to bring interactive services to New York hotels
 Posted at 10:28 AM PT

HEWLETT PACKARD — We've changed our look

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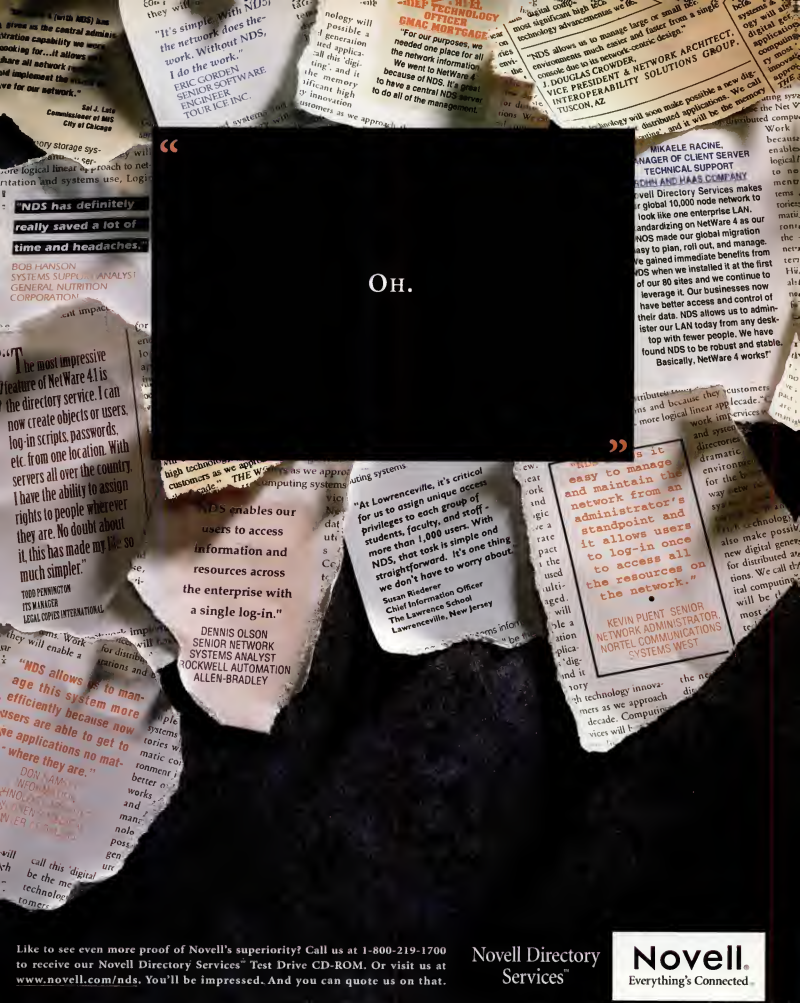
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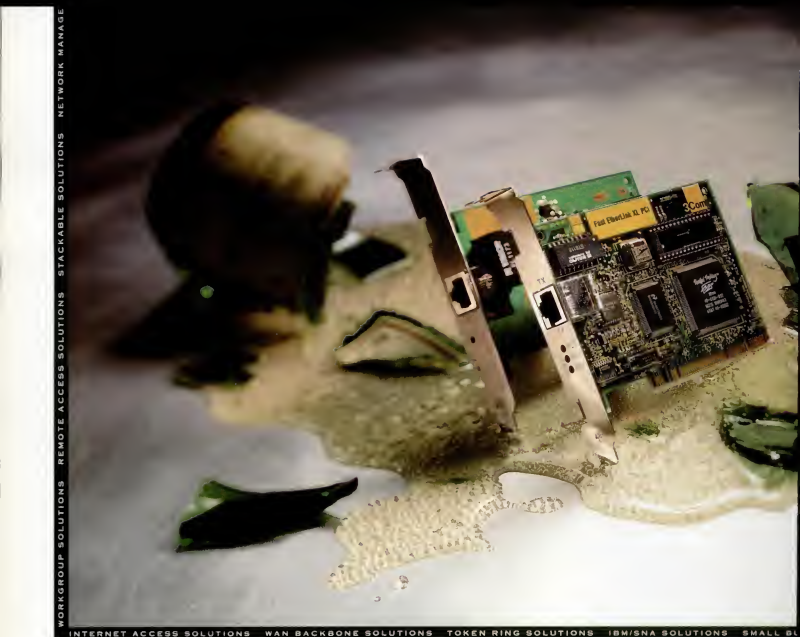
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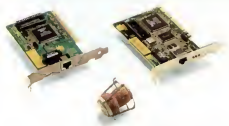
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PRODUCT COMPARISON

Backup solutions

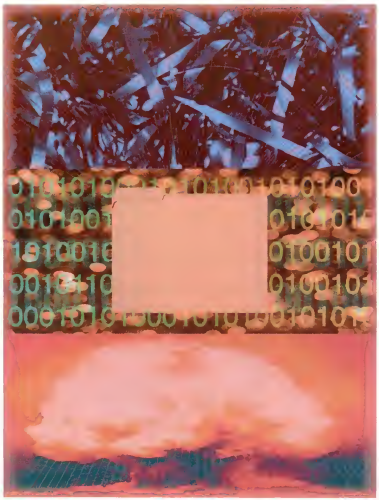
Not-so-painful necessity

Once every administrator's nightmare job, backing up data is no longer a task to be dreaded. With improved administration and speed, these revamped solutions leave no excuses for not backing up your systems.

COMPARED

Arcserve for Windows NT 6.0
Cheyenne Software Inc.

Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition
Seagate Software, Storage Management Group



BRYAN PETERSON

Backup is the network chore that everybody loves to hate. Although backup has traditionally been boring and buggy, the long nights spent nursing the backup program were a necessity — if you had dutifully backed up your data and saved it off-site, the day when your network ground to a halt wouldn't quite be the end of the world. But backup programs are getting better all the time, and the two we tested in this comparison do away with complicated interfaces and administration and actually perform fast enough to allow time for verification during a nightly backup. Although there are still some useful features missing — such as tape redirection after a job fails — these products did well in backing up our complex cross-platform network and would be a wise investment in your future.

LETTING THE VENDOR SOLVE OUR PROBLEM. We approached this comparison from the perspective of an administrator with a network running standard business applications, including a SQL database and a Lotus Development Corp. Notes database. We needed to back up a mix of servers and clients, including two NetWare servers, the Windows NT server running the SQL database, an OS/2 server running the Notes database, a Unix Web server, and Windows for Workgroups 3.1, Windows 95, Windows NT, OS/2 Warp, and Macintosh clients. (See diagram, page 100.) The databases would be open during backup. To be included in the comparison, a backup solution had to be capable of backing up the open databases and all the stations on the network.

Our most recent backup comparison (see Dec. 11, 1995, page 1) looked only at programs that ran on NetWare. Instead of choosing one platform on which to run the backup programs in this comparison, we wanted to use whichever platform was the best for a given product. We also wanted to let the vendors recommend a solution — they know their product better than anyone and could give us the configuration that would run best on our test network. Cheyenne Software Inc. sent us Arcserve for Windows NT 6.0; it also recommended eight Compaq Computer Corp. digital linear tape (DLT) drives in order to support Arcserve's RAID option and generally improve performance. Seagate Software, Storage Management Group's solution called for two backup products — Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition — installed on two separate servers, plus one

Compaq DLT drive on each server.

We also asked Intel Corp. and Legato Systems Inc. for backup solutions. However, Intel's StorageExpress all-in-one server, tape drive, and backup software solution didn't have the capability of backing up open databases, so it couldn't meet our criteria. Although Legato is famous for its Unix version of NetWorker, it wanted to send us the Windows NT version to showcase it; we were all set to test it when we discovered that it, too, lacked open database support. (See article, page 92.)

THE TEST CENTER'S REAL WORLD. We wanted to know how well these products stood up in a real-world scenario, not just how fast they could stream data to tape drives. In terms of each program's performance, we looked at how easy it was to install and administer, how reliable it was, and, of course, how fast it could back up our entire network. On the support side, we rated the documentation that came with the products, the support policies offered by the vendor, and the quality of the technical support we received. Finally, we scored how expensive the solution was.

It's likely that you'll be installing a backup program on a server running file-and-print or database services. It is essential, therefore, that installation does not interrupt services. It is also vital that the server remains up during installation and does not disrupt the network in any way. We also looked at how simple the installation was.

Neither of the products was particularly hard to install, and neither brought down anything on the server. They each had drawbacks, however — the Backup Exec solution required us to install two separate products on two different servers. The drawback encountered with Arcserve was potentially more serious. Cheyenne has dropped client IPX support with the release of Arcserve 6.0, meaning that if you don't have IP on your network already, you'll have to go through the hassle of installing it on every client you want to back up. With the rapid adoption of the Internet into large corporations, TCP/IP may well become the only protocol worth mentioning. However, our survey data still shows that IPX is on more networks than TCP/IP, and until the numbers reverse by a large margin, we think that IPX plays a very significant role in existing networks.

Ease and usefulness of administration features will also be high on the list when choosing a backup solution. We tested administration of these products during our backup and restore jobs. We also tested each product for support of industry-standard rotation schemes and for the flexibility and ease of scheduling. They both supported standard grandfather-father-son rotation schemes and provided easy-to-use interfaces. Arcserve excelled in this category with its flexibility and top-notch management capabilities.

We tested the reliability of the backup and restore jobs by comparing files before and after the backup and restore. We tested error recovery by shutting off the tape drive 10 minutes into a backup job, waiting 5 minutes, and turning the drive back on. Both of the products showed no difference between the original and backed up files — a perfect match. They both also recognized the problem with the shut-down tape drive and rescheduled the job to run at another time — much better performance than some of the products we tested in our last comparison.

BUGS KILL RAID DEAD. Arcserve comes with a unique option that lets you use a RAID configuration on the tape drives for extra fault-tolerance. We were excited about this new option, but when we used it to back up our Windows for Workgroups 3.1 client, the tape engine failed and abruptly ended our backup. Cheyenne says a fix is in the works, but we had to continue our testing without the RAID option.

You'll most likely be doing backup overnight, when the office has gone home and left the network idle. Our criteria for an acceptable backup job included the capability to back up our 20GB network in less than 8 hours — the generous window of opportunity we specified. Because backup is wasted time if it doesn't work correctly, we followed the iron rule of backup: use verification. We timed how long it took for each product to back up the network with verification.

Verification ended up being the dividing line between the two products. Although both products neared the theoretical data-transfer-to-tape rate on the restore, Backup Exec was almost twice as fast as Arcserve during backup, probably due to its faster method of verification. (See benchmarks, page 100.)

Overall, the two products did well in most categories. Our advice is to invest in a backup product and back up your network frequently, using verification. Backing up is like flossing — you've got to do it often. Store at least one copy of your backed-up data off-site. But if, despite all your hard work, something goes desperately wrong, don't panic — as a last resort, there are always miracle data recovery services that might be able to salvage your most important data. (See article, page 96.)

A guide to this comparison



100 You won't have to stay all night: Check out how fast these products backed up and restored our entire network.



096 That sinking feeling: Has your worst disk-failure nightmare come true? You'll want to know about DriveSavers, the court of last resort for disaster recovery.

Contents

86 Report Card
92 Product overview
92 Installation
92 No sequel for NetWorker
96 Administration
96 Disk doctors
100 Benchmarks
100 Test network diagram

Results at a glance

▸ Continued from page 1

capable of backing up an open SQL database.

If you're looking for an inexpensive backup solution that delivers fast performance, Seagate's Backup Exec is the obvious choice. It's especially suited to networks without IP installed on all stations — unlike Cheyenne's Arcserve, it supports IPX on Windows 3.11 clients.

Although its administration capabilities aren't quite as stellar as Arcserve's, it's nonetheless easy to use and manage.

Arcserve lagged behind during backup and raised our hackles by requiring us to install IP on our clients in order to run. The configuration Cheyenne recommended, with eight tape drives, was more than three times as costly as Seagate's two-drive solution. But Arcserve almost caught up in the restore phase of our testing, and its administration capabilities wowed us several times over.

Seagate's Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition garnered a clear victory with impressive speed in both backup and restore portions of our performance test. Backup Exec was also far less expensive than its rival — it required only two tape drives instead of eight, coming in at less than $10,000 for both hardware and software.

Backup Exec's strength was also its weakness in some ways — administration and installation were a bit more difficult on two servers instead of one. We were also disappointed that during a "run-only-once" job, we couldn't edit or create any other jobs. But Backup Exec did support clients via IPX — a great relief to any administrator who's network isn't set up with IP and doesn't wish to undergo the hassle of installing it.

Finally, Seagate's support package met our demands for 24-hour, seven-day-per-week support, even though a customer would have to pay for the priority package to receive the extended hours. And the technical support we received was superb, with a technician willing to stay on the line with us during an entire 10-minute backup to make sure our problem was fixed.

Cheyenne's **Arcserve for Windows NT 6.0** dragged its heels on the backup portion of our performance test, barely making the generous 8-hour acceptable maximum we had specified beforehand.

A large part of the delay was due to its intensive verification method. If Cheyenne added Cyclic Redundancy Check (the verification method used in Backup Exec), it would stand a good chance of overtaking its rival.

Arcserve did much better in the restore portion, when its verification process doesn't run. It was also more expensive than Backup Exec by leaps and bounds — including the eight tape drives Cheyenne recommended, our solution cost more than $35,000.

Arcserve's administration blew us away, however — Cheyenne has split the core engine into three components that add extra flexibility. Creating and managing jobs is so simple that even a complete backup novice could set up and run a recurring job with simple pointing and clicking; you can also manage Arcserve from any agent running on your network.

The only major beef we had during installation was that Cheyenne has dropped IPX support from this version of Arcserve — not a problem if all your stations are running IP, of course, but otherwise you'll have to go through the headache of installing IP just to run your backup.

Both products were completely reliable; they backed up our network of 20GB without a single incident of corruption or missing data.

Although the error recovery we encountered on both solutions was adequate, it could be even better; if these backup vendors added the capability to redirect failed jobs to another tape drive or a hard drive.

The Score

7.9
Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition

7.3
Arcserve for Windows NT 6.0

RELATED ARTICLES

Dec. 11, 1995, page 1
The big backup
We compared five backup programs for the NetWare platform — including previous versions of Arcserve and Backup Exec. Backup Exec for NetWare carried the day, and Arcserve 5.01g1 for NetWare came in second.

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PRODUCT COMPARISON

Report Card

Backup solutions

GUIDE

- Rating
- Score in points
- See this page for detailed report information

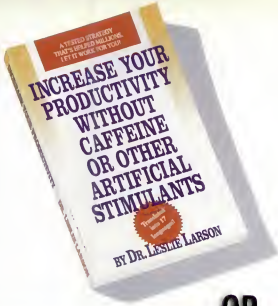
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	Weighting	Arcserve for Windows NT 6.0 Cheyenne Software Inc. Roslyn Heights, N.Y. (800) 243-9462, (516) 484-5110 http://www.cheyenne.com	Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition Seagate Software, Storage Management Group¹ Lake Mary, Fla. (800) 327-2232, (407) 333-7500 http://www.smg.seagatesoftware.com
Performance			
Installation and configuration	10%	*Good* 0.6 ▯92 Installation of all the Arcserve components was straightforward and simple, although the absence of IPX support on the Windows 3.11 agents was a big oversight on Cheyenne's part, considering our clients were running Virtual Loadable Modules and no TCP/IP.	*Good* 0.6 ▯96 The installation of Backup Exec was mostly painless; it would've been easier if we didn't have to install two server products. Backup Exec can use Microsoft Corp.'s networking resources to back up shared drives, so setting up the Windows clients was quicker than with Arcserve.
Backup speed	15%	*Satisfactory* 0.6 The performance loss on Arcserve had to do with its verification method. Using a full tape-to-disk method, not a Cyclic Redundancy Check (CRC)-type method, created a large amount of overhead in performance time. With Arcserve's time nearing 8 hours on the backup portion of our performance tests, Cheyenne should add a CRC-type function.	*Very Good* 1.2 Backup Exec won the clear victory during the backup phase of our performance test. The use of a CRC verification method instead of full tape-to-disk verification reduced the time required to go back and check the data to such a degree that Backup Exec was almost twice as fast as Arcserve. The widened throughput was also partly due to the use of two servers instead of one.
Restore speed	15%	*Very Good* 1.2 Having fallen behind Backup Exec in the backup test, Arcserve made tremendous strides to recover in the restore test. Although still slower, it managed to produce a data transfer rate of 2.18MBps, proving that Arcserve is certainly a serious contender when it comes to throughput capability.	*Excellent* 1.5 With an impressive 2.50MBps transfer rate on the restore, Backup Exec came within 10 percent of the theoretical maximum transfer rate of the digital linear tape (DLT) drives. The fact that the restore job was split across two servers probably ensured the victory over Arcserve, although the number of DLT drives in Cheyenne's solution made this race a close one.
Administration	20%	*Excellent* 2.0 ▯96 Cheyenne has created easy-to-use yet powerful administrative functions with a simple "what to back up, where to back it up to, and when to do it" approach. A set of engines for the database, jobs, and tape devices gives Arcserve flexibility in control over the core functions of its software. The centralized management capabilities are top-notch and well-laid-out. Control of active jobs and jobs in the schedule is also high on the ease-of-use list. A full-featured reporting function allows many reports to be generated. Arcserve definitely outshone Backup Exec in administrative features.	*Good* 1.2 ▯100 Backup Exec suffered when compared with Arcserve because it had two servers backing up using two separate interfaces. The management of the jobs was done on two very similar but different software packages. Also, while a "run now" job was in progress, Backup Exec restricted us to being able to abort the job only — we couldn't hold it and reschedule it for another time or change its backup criteria. This meant that once a job had started, we had to wait for it to finish or abort it in order to use any other function of Backup Exec, including getting the next job ready to run.
Reliability and error recovery	15%	*Very Good* 1.2 With a perfect record of backing up reliably and restoring without error, Arcserve was well on its way to finishing with a high score. When we switched off the tape drive for failure testing, Arcserve came back instantly with the error correctly identified. In a scheduled job situation, Arcserve will reschedule the backup job to perform again. It would have been a bonus to have the job retry at a time preset by the administrator; also, it would have been more convenient if Arcserve could have tried to redirect the job to another tape drive.	*Very Good* 1.2 Backup Exec ran almost neck and neck with Arcserve. It, too, reported a tape-drive failure correctly as soon as the fault occurred, although it took slightly longer to abort its job. Like Arcserve, Backup Exec lets the next scheduled job run and reschedules the failed job if it is already in a schedule. This product would have also benefited from redirection capabilities to either a tape drive or a hard drive. With these extra fault-tolerant features, both Backup Exec and Arcserve would have received an excellent score.
Support and price			
Documentation	5%	*Very Good* 0.4 A lack of any quick-start guide or a glossary of terms took the shine off an otherwise high-quality manual. Good descriptive writing and a plentiful supply of screen shots reflect the thought that has gone into making the manual an accurate and helpful representation of the product.	*Very Good* 0.4 Using two products means needing two sets of manuals. Backup Exec provides consistent documentation that reflects the respective operating systems it is running on. Well-laid-out and informative, they provide descriptions and advice on topics such as rotation schemes.
Support policies	5%	*Very Good* 0.4 Free phone support on a toll-free line is unlimited; 24-hour support exists via a paid support package. Standard support is available weekdays from 8 a.m. to 6:30 p.m. Eastern time; there's a Saturday callback service. A money-back guarantee applies for 30 days.	*Very Good* 0.4 Seagate's $2,995 priority-support package has 24-hour, seven-day-per-week phone support. Standard support hours are weekdays from 8:30 a.m. to 8:30 p.m. Eastern time; the free phone-support period lasts for 90 days. There is also fax, BBS, e-mail, and Web support.
Technical support	10%	*Very Good* 0.8 Cheyenne's technical support staff was quick to respond to our telephone calls. Within minutes we were talking to a technician who was able to quickly diagnose our problem. Although he got the problem solved, it would have been comforting if the technician stayed on the line while we were trying his suggested fix.	*Excellent* 1.0 The expected "call us back if you still have any problems" was substituted with "I'll hold on and make sure it works" with Seagate. Hold time was almost nonexistent, as with Cheyenne. The technician was willing to stay on the line and ensure that the problem was resolved, even when it took 10 minutes to try the solution.
Price	5%	*Poor* 0.1 Cheyenne's recommended configuration called for eight tape drives, driving the total price for the software and hardware used to a whopping $35,020, more than three times as much as Seagate's solution.	*Very Good* 0.4 Seagate's solution, which included two tape drives instead of eight, only cost us $9,580, far less than Cheyenne's solution.
Final score		**7.3**	**7.9**



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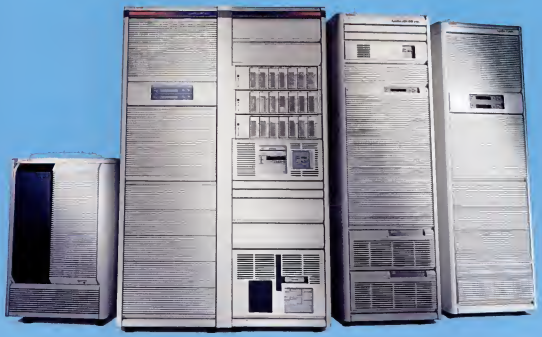
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What exactly merits an excellent?

Check out our scoring criteria for this comparison on InfoWorld Electric at http://www.infoworld.com/cgi-bin/displayTC.pl?pcsb091696.htm.

Product overview

Arcserve for Windows NT 6.0

Out of the box, the Enterprise Edition of Arcserve for Windows NT 6.0 comes with full administrative client and client-agent support for Windows NT, Windows 95, and Windows 3.1. (DOS support, not included, is available free.) Support for Macintosh and OS/2 users costs an additional $495 each; NetWare support costs $695 and Unix support costs $995.

Arcserve incorporates a number of new features, including tape RAID and Image options ($995 each), bar-code support, and a more comprehensive alert system. The RAID option, using RAID Levels 0 or 5, is supposed to increase backup speed by sending data across multiple drives; we couldn't fully test it on our network because it crashed every time it tried to back up a Windows 3.1 client. The Image option performs high-speed image backup and restoration.

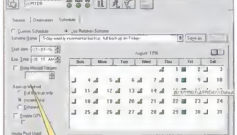
A new disaster-recovery feature that enables administrators to carry out high-speed server rebuilds without reinstalling NT or Arcserve should be available soon. This feature uses a disaster-recovery floppy diskette to guide administrators through a rebuild. Arcserve offers full support for Windows NT 4.0.

Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition

Seagate Technology Inc. merged with Conner Peripherals Inc. on Feb. 2 of this year and acquired Arcada Software Inc. in the process. Arcada Software and Seagate's other backup subsidiary, Palindrome Corp., merged on Feb. 16 to form a new industry heavyweight — Seagate Software, Storage Management Group.

Seagate Software is still in the process of developing a new market strategy, but at this point it appears that the company plans to integrate many features from its Backup Director product (formerly sold by Palindrome) into Backup Exec (formerly sold by Arcada) to ensure easy data migration.

We used both Seagate's Windows NT and NetWare products in order to support our entire network and avoid bottlenecks caused by backing up to one server only. With Seagate's advice, we split the backup load between our Windows NT server and our NetWare server.



Setting up jobs in Arcserve is straightforward and simple; the administrator can schedule when missed jobs are retried.

Seagate released Backup Exec for NetWare 7.11 in June, and this iteration has a number of new features, including Storage Management Services support, a SureStart NetWare Loadable Module (NLM) that detects any mismatched NLMs, a new job-editing utility, and catalog-aging capabilities. The Enterprise Edition supports any number of servers and has unlimited agent support for OS/2, Unix, Macintosh, and NetWare. Backup Exec for Windows NT 6.11 first appeared in May of this year and is the third generation of the product. The Single Server Edition comes with agent support for Windows 95; agent support for Windows NT is available for all OSes except the Mac and Unix. Version 6.11 also comes with ExecView 2.01, a console that enables users to monitor multiple servers and clients and monitor backups from any machine.

Installation and configuration

Arcserve for Windows NT 6.0

GOOD

Overall, Arcserve's installation was straightforward, although the absence of IPX support and the need to install TCP/IP on clients that were not already running it was an annoyance. The installation and configuration got off to a great start. The easy installation that required running **setup.exe** from the CD-ROM gave us a choice of installing all of the Arcserve components or using a custom setup, as well as the option of autostarting Arcserve when Windows NT booted.

After completing the server installation, the additional agents were relatively straightforward to install — with one exception. Unlike the Windows 3.x NetWare agent used in Arcserve for NetWare, the agent for the Windows NT version required that TCP/IP be running on each machine before the client agent would work — not a task to be ignored if you have a large network and are limited in IP addresses.

Without using the Windows agent software, we could have mapped a drive from our Windows NT server to each of the Windows 3.11 clients and used Microsoft Corp.'s networking as our transport. With older clients this would not have been possible and would have demanded the use of Cheyenne Software Inc.'s agent. The absence of IPX

No sequel for Legato

By Andy Nelson

Having dominated the backup performance category in our NetWare Product Comparison last year (see Dec. 11, 1995, page 1), we were curious to see how Legato Systems Inc.'s NetWorker for Windows NT 4.2.1 Network Edition would perform in the Windows NT arena. Much to our disappointment, the absence of any function or component designed to back up a live SQL database left NetWorker standing at the ticket booth while its competitors raced to get the best seats.

This was not the only area in which NetWorker was missing database support. Legato does not currently support live Lotus Notes databases with its Windows NT product either, although it has something in the works for both SQL and Notes.

Included with NetWorker is client support for Windows 3.x and Windows 95. Additional client packages are required for Unix machines, Windows NT clients, OS/2 machines, Macintoshes, and NetWare servers. Legato also provides an optional auto-loader support module.

In order to use NetWorker with any OS (other than the one on the local device), including Windows 3.11 or NetWare, TCP/IP must be installed. For our test bed, for example, we had to wrestle with installing TCP/IP on every server and client (not simply the clients, as with Arcserve).

The installation was quick and simple, compared to the hassle of making sure that TCP/IP was running. For those networks set up with domain name service and IP addresses for all of their machines, the NetWorker installation would be a snap.

The backup and restore process has gone almost unchanged from the NetWare product to the Windows NT version — good news for those already familiar with NetWorker. NetWorker clients have far greater control over backup and restore processes than their competitive clients in Arcserve and Backup Exec. With the current version, users are able to specify when they want to do a backup or request a restore — subject to the administrator creating appropriate access. The downfall to this approach is that the administrator must physically walk over to a client to initiate a restore.

With excellent documentation that provides clear and concise instructions for administering NetWorker — a major step forward since our last comparison involving NetWorker — the need for technical support should be minimal. If you need it, however, be prepared to sit and wait for a while. Legato maintains a callback policy for all its toll-free technical support. Although the support staff is very good and gets the problems resolved quickly, on one occasion, late on a Friday afternoon, we were told that we would probably not get a callback until Monday. Getting straight through to technical support instead of waiting for a callback that took two days would have alleviated the stress on some very frustrated analysts.

Legato does provide 24-hour, seven-day-per-week paid technical support. For those without the budget for paid support, be prepared to wait about an hour before your callback, and make sure you call early enough to receive a callback the same day.

Overall, the product gets the job done. It is designed for users who have at least a basic understanding of backup and how it works. If you are the kind of administrator who wants to keep total control over what is happening with your backups, NetWorker probably isn't your cup of tea. But if you're looking to relinquish some control and responsibility for backup to your users and you've already got TCP/IP running on your network, it could fill the bill.

NetWorker for Windows NT 4.2.1 Network Edition costs $1,495; it includes backup client software for Windows NT Server or Workstation, Windows 95, and Windows 3.x. The Server Pak option, included in our tests, costs $1,250.

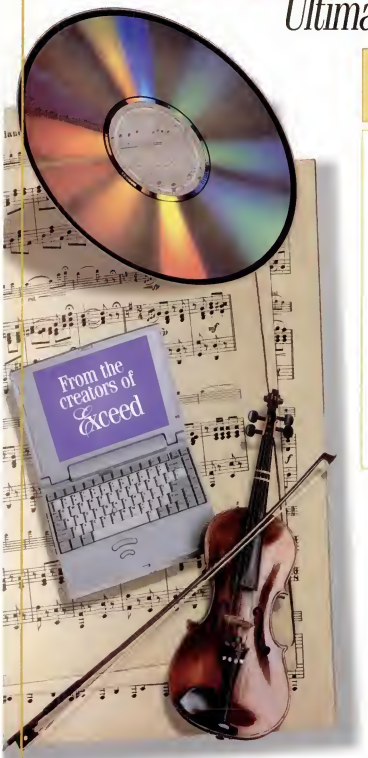
A ClientPak of Unix agents costs $1,500; the ClientPak for NetWare costs $1,500. Macintosh clients cost $150. Legato is at (415) 812-6000 or http://www.legato.com.

CONTRIBUTOR

Lisa Nishimoto was a summer intern in the InfoWorld Test Center and is now entering her senior year at the University of California, Berkeley. She can be reached at feather@uclink.berkeley.edu.

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support made the installation a bit more involved than we would have liked. Using Microsoft's drive-mapping technique, we could potentially run out of drive letters in a very short time.

The remaining agents all supported either IPX or TCP/IP with the exception of the Unix agent, which, obviously, used TCP/IP. Dynamic Host Configuration Protocol was also supported for those networks that do not assign individual IP addresses to each machine.

Better support for client protocols would have given Arcserve the edge in the installation category.

■ Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition

GOOD

Backup Exec's ease of installation on the Windows NT server was on par with Arcserve, but the need to install two server packages created additional fuss that lowered the score.

Seagate suggested that the Windows NT server would probably peak out before the network load reached more than 20 percent and, therefore, decided to use two backup servers to split the backup load. At its recommendation, we configured Microsoft's OSes to back up to the Windows NT server and all the remaining platforms to the NetWare 4.1 server.

The way Backup Exec connects to Windows clients also differs from Arcserve. Where Arcserve uses Microsoft's networking to create drive mappings, Backup Exec takes advantage of the sharing capabilities built in to Microsoft's products. Client agents can be used on NT and Windows 95 workstations, allowing the use of TCP/IP or IPX/SPX as the negotiating transport.

With both products, the ability to select the clients during installation and distribute the client agents to their respective machines would have been another step in the right direction. Additionally, the ability to install the product remotely from an appropriate workstation would have eased the hit taken on this category.

TAPE STRATEGIES

Having a lot of tape drives doesn't necessarily mean faster backups. Strategically placing tape drives and backup software can improve your backup speed considerably. Take into account factors such as the amount of data on the SCSI chain or throughput on the network card. Seagate's Backup Exec used only two strategically placed tape drives, whereas Cheyenne's Arcserve used eight drives clustered behind one network card.

Administration

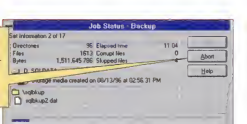
■ Arcserve for Windows NT 6.0

EXCELLENT

The transition from Arcserve for NetWare to Arcserve for Windows NT has pulled in some excellent development along the way. With the old, single Arcserve engine replaced by three independent engines that control the jobs, tapes, and databases, the core functions of Arcserve can be managed with greater control. A separate program allows quick access to the engines. Pausing, stopping, and starting engines is as easy as one mouse click.

Using the same Quick Access window Arcserve has had for a while, Cheyenne redesigned the way users create and schedule jobs. An intuitive source-destination-schedule tabbed-interface approach makes users follow a logical route for each job they set up. The entire job-creation process is easy to learn, even for users new to Arcserve or new to backup.

An enhanced set of options allows a user to specify various types of verification (but Cyclic Redundancy Check is noticeably absent); execution of applications before and



Backup Exec's administration left a little more to be desired: When we were running an unscheduled job, we couldn't do anything else except abort the job.

Disk doctors

TELL IN THE FAMILY

GFS rotation

To help ensure data security and hold media costs down, backup products should be capable of supporting a tape-rotation scheme. Both products we tested supported the standard grandfather-father-son (GFS) rotation. The GFS scheme involves rotating tapes so an administrator always has a tape available from yesterday (son), last Friday (father), and the last Friday of each of the last 12 months (grandfather). With GFS, you save each daily tape (Monday to Thursday) for one week, each weekly tape (Friday) for one month, and each monthly tape (end of month) for one year. You can implement GFS with either incremental or full backups on weekdays.

By Lisa Nishimoto

Snug as a bug in a rug — that's how one Fortune 500 company in Minnesota felt before its entire Unix financial system went down due to a failed hard drive. The company had been backing up the system to two sets of tapes, kept in on-site and off-site vaults, for five years, and no one worried as they put in the first tape to restore the data. To their horror, they found tape after tape completely blank. No one had verified that the data had been backed up. In five years, not a single byte had been written to the tapes.

Enter Novato, Calif.-based DriveSavers, a company that has been recovering data from downed hard drives since 1985. DriveSavers received the damaged drive on a Friday night; by Sunday evening, it had saved the critical data and sanity of the Minnesota company's vice president of finance.



Scott Gaidano, president of DriveSavers, shows a computer that was melted in an office fire; DriveSavers was able to recover the critical data from the hard drive.

In the DriveSavers laboratories, engineers-turned-disk-doctors diagnose and operate on failed drives that have been given up for dead by everyone else. They first evaluate the drive to determine if the problem is hardware- or software-related; then, based on the operating system, they try every trick in the book to fix it. For a software problem, engineers make a copy of the drive's contents and try different tools on the copy until striking virtual gold. Many times they use specialized software they've developed themselves. For hardware problems, they tap an inventory that contains almost every drive part ever made.

Some problems can be fixed simply by using an application such as Norton Utilities. Major mechanical problems, however, require a trip to DriveSavers' clean room, where workers perform open-drive surgery in an environment with air 10,000 times cleaner than normal office air. DriveSavers' agreements with all major hard-drive vendors allow it to open and fix the drives while preserving the original drive warranty agreement.

DriveSavers will usually recover data from most damaged hard drives, floppy disks, RAIDs, and removable storage devices (with the exception of tape drives) with a 24- to 48-hour turnaround. Customers can bring the drive in, send it via Federal Express, or request an on-site recovery.

The company also offers a high-security data-recovery program for recovery of particularly sensitive data. Although some data may be unrecoverable — for instance, when a drive head physically scrapes the data off the platter — DriveSavers says that nine out of 10 times it successfully recovers the needed data. The company processes about 15 data-recovery requests per day and returns recovered data to customers on the media of their choice, including DAT, removable cartridge, magneto-optical storage, and CD-ROM.

The cost depends on the size of the hard drive and the operating system — some OSes are harder to recover than others. Jobs can range from $100 for a floppy-disk recovery to several thousand dollars for a multigigabyte array. DriveSavers only charges between $100 and $200 for an unsuccessful attempt.

Even IS managers who think they're backing up data still face plenty of pitfalls.

"Every day we get at least one case where a person said, 'We're backed up 100 percent,' when they really were not," said Scott Gaidano, president of DriveSavers.

Companies need to periodically verify that data is backed up. Keeping at least one copy of data off-site is also wise. DriveSavers revived data from one computer suffering from a fire that welded the monitor to the CPU. The backups, on floppy disks, had been sitting on the desk right next to the computer.

Portable computers, which are less often backed up even though they are more prone to disaster than average desktops, frequently fall victim to drive damage.

"We get a lot of airport stories," Gaidano said.

DriveSavers' "Museum of Disk-asters" recounts stories of data successfully resurrected from a PowerBook that sunk to the bottom of the Amazon River, another that was run over by a shuttle bus at the Macworld Expo, and other catastrophes.

Although DriveSavers sometimes advises callers to try using software utilities to recover their data before using its services, there is one big exception.

"If the data is mission-critical, it's better to use a professional than [to risk] using a utility, because in some cases utilities could cause more harm," Gaidano said.

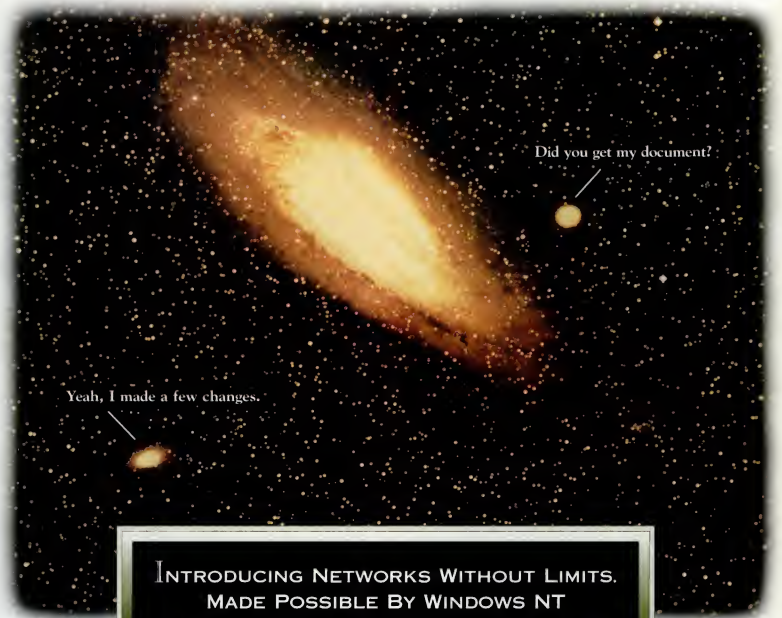
DriveSavers also recommends making extra copies of compressed data because it is more difficult to recover.

For those desperate to recover their data, DriveSavers may be the answer. But with a little care and planning, you won't have to call them.

DriveSavers can be reached at (800) 440-1904 or at http://www.drivesavers.com.

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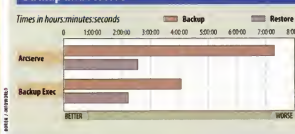
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Benchmarks

Verification makes all the difference

Both the Arcserve for Windows NT 6.0 and Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition solutions made good time when restoring our backed-up data, but Arcserve was slower by nearly half in the backup portion of our test. The method of verification used by each solution played a large role in backup speed. Arcserve's verification uses full tape to disk, which compares every byte of backed-up information on the tape with the original source disk. Backup Exec uses Cyclic Redundancy Check (CRC) verification, in which the CRCs on the tape are compared with those on the local disk — a shorter process that still maintains a high level of error detection. The two solutions ran much closer together in the restore tests, when no verification was taking place.

Backup and restore



S. DIEHL / INFOWORLD

If you have questions or comments about this comparison, please direct them to Holly Blumenthal at holly_blumenthal @infoworld .com.

after job completion; various retry methods; and virus checking during backup. Several built-in alert functions notify an administrator of completions or failures in backup or restore tasks.

The scheduling and rotation scheme functions in Arcserve are exceptionally easy to use and set up. Simple icons display which days are receiving a full, incremental, differential, or no backup. Changing the type of backup for that day is as easy as clicking the icon on the calendar.

New reporting functions allow administrators to retrieve as much detailed information as they need from Arcserve to see the progress or history of how well the product is functioning. The job log is also a gold mine of information when a job is running. A custom bar allows a user to view an assortment of facts such as the status of the job, what time it runs, who started it, how much data has been backed up, and even the average transfer rate of the data. This ability to see the average transfer rate could help greatly if there were more than one server and an administrator was trying to load-balance the backup.

Overall, Cheyenne outdid itself with the administrative functions built in to this product.

Backup Exec for Windows NT 6.11 Single Server Edition and Backup Exec for NetWare 7.11 Enterprise Edition

GOOD

Although Seagate is soon to release ExecView 2.01, which will monitor multiple servers from one administration console, we had to switch back and forth between the NetWare and the Windows NT servers to manage jobs in our tests, a hassle that lowered Backup Exec's score.

The biggest annoyance was the need to schedule two sets of jobs on two products. Aside from this, the actual creation of jobs was very simple and straightforward.

We selected our source in either the backup or restore windows by checking a box next to the resource. Having established this, we selected either Backup or Restore from the toolbar and proceeded to complete the submission of the job. The NetWare and Windows NT products worked almost identically with only minor differences between the two.

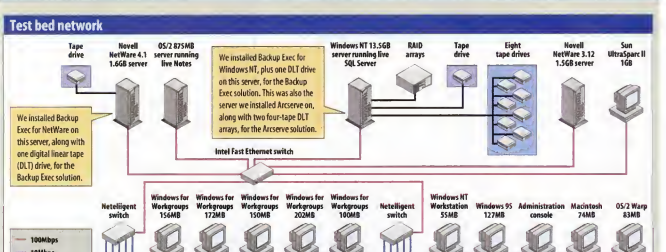
With the ability to create custom or predefined schedules, the ease of use and flexibility was as good as Arcserve, although the flow of the system was somewhat harder to grasp quickly. In Arcserve we could more or less find where we were going instantly; Backup Exec took a little more trial and error.

One detail that did prove to be continuously annoying on the Windows NT product was that while running a job in a run-only-once capacity (as opposed to a normally scheduled job), we couldn't do anything with Backup Exec except abort the job. The window that showed the job status would not drop into the background of the application. We couldn't change any scheduling, nor could we configure and start a new job during the run (unlike during a normally scheduled job); the only options were to let the job finish or abort it. This would make life difficult for an administrator because it's likely odd jobs would be assigned in the same time period.

With ExecView 2.01 on the horizon, it's possible a portion of the administration deficiencies will be overcome, leaving just a little work on the interface layout and design. From there on, Backup Exec looks as though it could once again be a serious contender of Arcserve's in administration.

How we tested

Test bed network



S. DIEHL / INFOWORLD

We wanted to test backup products over a real-world network in order to see how well they could back up multiple platforms and open databases. We set up a LAN that represented our readers' average local (department) network.

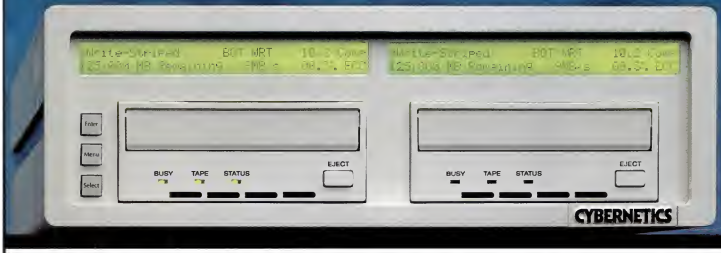
We used a 100Mbps Fast Ethernet collapsed backbone with two segments running from the switch. Each of these segments provided switched 10Base-T to the desktop with a 100Mbps uplink to the backbone switch. We populated the segments with five clients each.

On the server side, our OS/2 server running Lotus Development Corp.'s Notes represented a database server on a network where users have some flexibility in developing database applications to assist in their everyday jobs. Our Windows NT 3.51 server running a Microsoft Corp. SQL database was the primary storage point of the department's data. Bowing to the pressures of the '90s, we had a powerful Unix Web server running as well.

Cheyenne recommended that we install Arcserve on our Windows NT server, along with eight digital linear tape drives.

Seagate sent us two products, its NetWare and NT versions of Backup Exec, with recommendations to install them on their respective servers along with one tape drive each.

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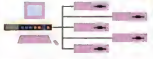
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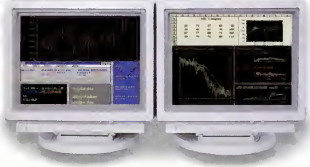
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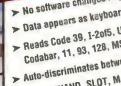


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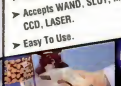
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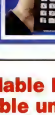
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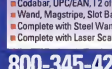
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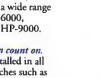
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Upcoming in InfoWorld

IN FUTURE ISSUES PRODUCT COMPARISON UPDATE *ENTERPRISE DEVELOPMENT TOOLS:* Our June 17 Product Comparison of enterprise development tools didn't include the latest version of PowerBuilder, from the Powersoft Business Group of Sybase Inc., because it was in beta at the time of our testing. We revisit this topic by running PowerBuilder 5.0 through the same set of tests we used in June to see how it stacks up against our winner, Oracle Corp.'s Oracle Developer 2000, Release 1.3.

ENTERPRISE COMPUTING *FEATURE:* Message-oriented middleware is supposed to let disparate back ends talk to one another, but the growth in the number and types of middleware has made it a management and maintenance headache. This feature examines a new type of architecture that promises to ease the administration of middleware systems.

PRODUCT COMPARISON *SPEECH RECOGNITION SOFTWARE:* Speech recognition software has become faster and more accurate. But if you've never used it, will it make you more productive? We test DragonDictate's Dragon Dictate Classic Edition for Windows 2.5, IBM's VoiceType Dictation 3.0 for Windows 95, and Kurzweil Applied Intelligence Inc.'s Kurzweil Voice for Windows, Release 2.0.

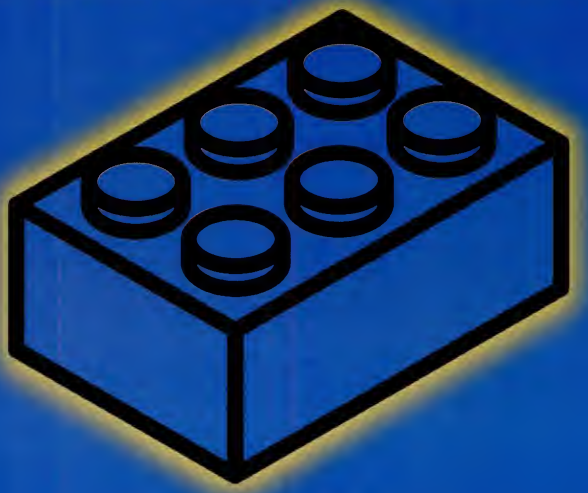
ENTERPRISE COMPUTING *FEATURE:* Network management tools have long needed a unifying force to make different tools and systems easier to manage. Enter Web-based management tools, which promise to offer a single, browser-based interface to all of your systems. We look at what vendors and individual companies are doing to make Web-based management a reality.

PRODUCT COMPARISON *HIGH-SPEED NETWORK BACKBONES:* Today's 10Base-T backbones are being put under increasing pressure as networks get larger and computers get faster. Until recently the backbone of choice for performance intensive networks has been FDDI. Now there are two serious backbone alternatives — Asynchronous Transfer Mode (ATM) and Fast Ethernet. In this comparison we test ATM, Fast Ethernet and FDDI to find the best technology solution to your backbone bottlenecks.

ENTERPRISE COMPUTING *FEATURE:* The trend toward consolidation among networking vendors continues unabated. Vendors are promising cheaper, more integrated products, but many people fear that the types of products and services, as well as the number of options available to network managers, will decrease. This feature examines the future of network product offerings.

PRODUCT COMPARISON *SQL DATABASES:* For most organizations, a client/server architecture is the norm rather than the exception — relational databases are the mainstay of this environment. In Part 1 of a two-part series, we look at DB2 for AS/400 3.6, from IBM, and Microsoft Corp.'s SQL Server 6.5. We run the tests that tell you which is the better relational database.

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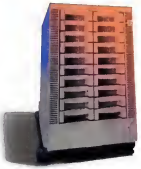
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▸Network operating system

NetWare moves in new direction

By Jeff Symoens IntranetWare is Novell Inc.'s new flagship, and it represents an evolution of the NetWare product line. This release, developed in beta as Green River, offers a host of enhancements to the NetWare core and bundles a number of key applications and NetWare add-ons that significantly strengthen NetWare's position against Microsoft Corp.'s Windows NT Server 4.0 as a more scalable network operating system (NOS) enterprise solution.

BETA

Many of the "new" features included in IntranetWare have been significantly road-tested as add-on products to the NetWare product line. For example, NetWare/IP 2.2, NetWare Web Server 2.51, and NetWare Multiprotocol Router (MPR) have long been shipping as separate products. Other subsystems, such as support for symmetrical multiprocessing (SMP), 32-bit client updates for DOS/Windows 3.x, Windows 95, and Macintosh, and many other enhancements to the core NOS have also been available through various channels for quite some time.

I looked at a beta version of IntranetWare for this review. Novell will officially launch IntranetWare this week at NetWorld+Interop in Atlanta. Availability, pricing, and even more features should come to light at that time.

Core improvements

Novell has made significant enhancements to several components of the core NOS. I liked the hardware auto-detection feature, which sniffed out my server hardware and installed the appropriate driver. I was particularly impressed with the way this feature worked with network interface card installations. The auto-detection feature does a search of the network and automatically configures the settings for each protocol.

Novell's integration of SMP support is handled well by the installation program. Novell has also rolled its server configuration parameters into the Monitor program, allowing for more tightly integrated viewing and configuration of parameters from a single interface.

Another feature, soon to be an administrator favorite, is Abend auto-recovery. When a noncritical Abend is encountered at the server, this feature will suspend the process, identify the faulty NetWare Loadable Module, and allow the server to continue operation until the administrator can close down the server to correct the problem. More significant, however, is the feature's handling of critical server faults. In this case, which I was able to witness firsthand, the server automatically broadcasts a warning to users and allows them to save open files and log off before the server automatically shuts down.

Administration and migration

Novell has also included a set of utilities to migrate NetWare 3.x bindery installations to the 4.x platform and has made major improvements to the overall administration of the product. Novell has bundled Preferred Systems Inc.'s DSMigrate utility to perform user migration from bindery to Novell Directory Services (NDS). A new tool to migrate data from NetWare 3.x servers has also been included.

I was impressed with a number of new NetWare administration tools. DSManager, for one, gives you a Windows-based utility to create and manage various NDS replicas across the tree. Even more impressive were the new versions of NWAdmin for Windows 3.x and Windows 95, which support the use of multiple NDS trees, the use of NDS object templates, and global changes to user properties.

The ability to work with multiple trees is a compelling feature, because it lets administrators "graft" NDS resources, such as users and groups, from one tree to another, thus allowing for distributed administration across multiple trees or even across multiple organizations. (Grafting was not a part of this beta.)

From your network to the 'net

In addition to all the upgrades to the core NOS, IntranetWare's real strengths consist of its suite of multiprotocol- and TCP/IP-specific utilities. The inclusion of NetWare/IP, NetWare Web Server, MPR, and other services into the core product adds significant value to IntranetWare and brings the product's feature set in line with Microsoft's latest offerings in NT 4.0 Server. However, Novell's toolset offers significantly more powerful configuration options than Microsoft's.

Nowhere is this more evident than in Novell's MPR, which offers an incredible amount of protocol-, host-, and router-filtering options, whereas Windows NT Server offers almost no real user-level configuration. Novell also offers better suitability for wide-area routing, particularly with the use of NetWare Link State Protocol (NLSP) as a replacement to the combination of Routing Information Protocol (RIP) and Service Advertising Protocol (SAP). NLSP can significantly reduce network traffic overhead and the cost associated with usage-billed, wide-area carrier services, such as ISDN and fractional T1.

But Novell has yet to fully integrate the installation of all the new product components; thus I had to set up the Dynamic Host Configuration Protocol (DHCP) server, the Web Server, and the Novell Internet Access Server separately, after I completed the primary installation.

Although the NetWare/IP component setup was integrated into the installation, I still needed to install this component subsequent to the main install when I set up the first NetWare/IP server, because the initial NetWare/IP server configuration had me load a configuration tool (UNICON.NLM) that was not yet installed.

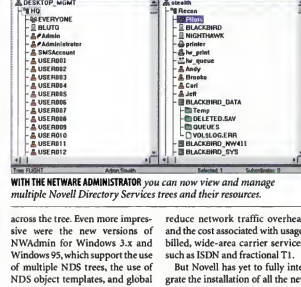
Unless you've been through the NetWare/IP installation before, setting up the first NetWare/IP server can be somewhat frustrating without some background on Domain Name System (DNS) and Novell's Domain SAP/RIP Services (DSS), which provide NetWare services to IP clients. However, setting up subsequent servers is a breeze, because the product retrieves the existing DNS and DSS information from the network and adds the server to the existing configuration.

The NetWare/IP component offers a DNS server and DHCP server. These two components include typical capabilities. I did spot one minor inconvenience in the DHCP server configuration. Although I was able to exclude individual IP addresses from a dynamic range, I was unable to exclude blocks of IP addresses from the range.

IntranetWare also offers an IPX-to-TCP/IP gateway. This feature allows NetWare IPX clients access to IP-related services, such as intranet- or Internet-based Web servers, thus eliminating the need for an IP stack at the client.

In some instances, Novell has done a nice job at providing better integration among all of IntranetWare's features. But in many cases, there's still plenty that Novell could do to ease configuring the product's many features in an orderly fashion.

Jeff Symoens is a technology analyst in the InfoWorld Test Center. You can reach him at jeff_symoens@infoworld.com.



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- NDS migration tools
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IntranetWare, beta

Novell's IntranetWare beta moves the NetWare product line closer to the Internet as key enhancements improve performance, administration, and enterprise scalability.

Pros: Improved support for intranets and the Internet; new user administration, Novell Directory Services, and migration tools.

Cons: Some quirks; could benefit from more tightly integrated administration of server component.

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SEARCH ME

Users of Microsoft Corp.'s Exchange will welcome a search tool that can look through both public and private resources. Turn to page 122 for our beta review of Verity Inc.'s Search'97 Personal for Microsoft Exchange.

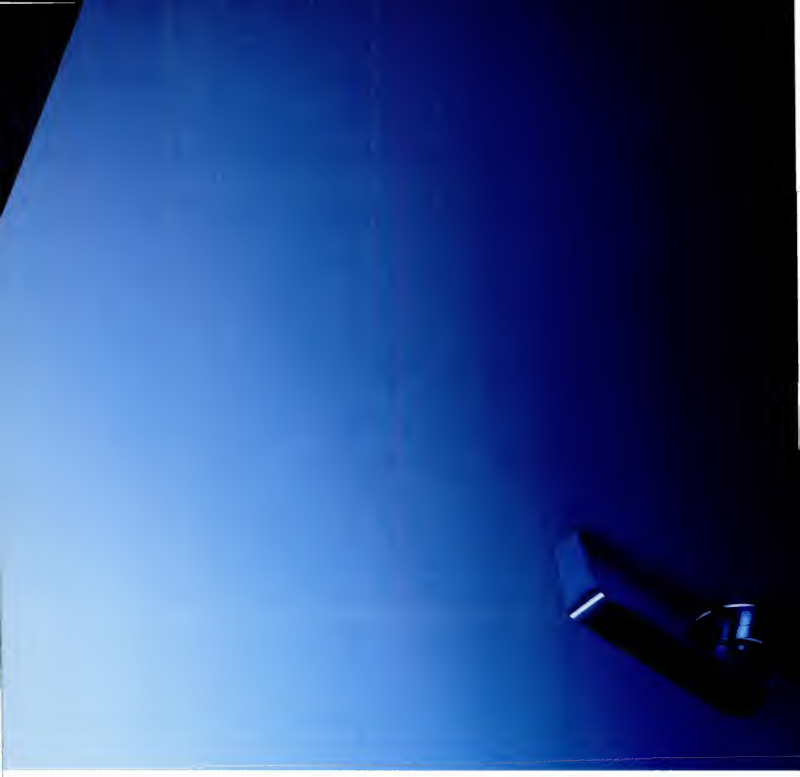
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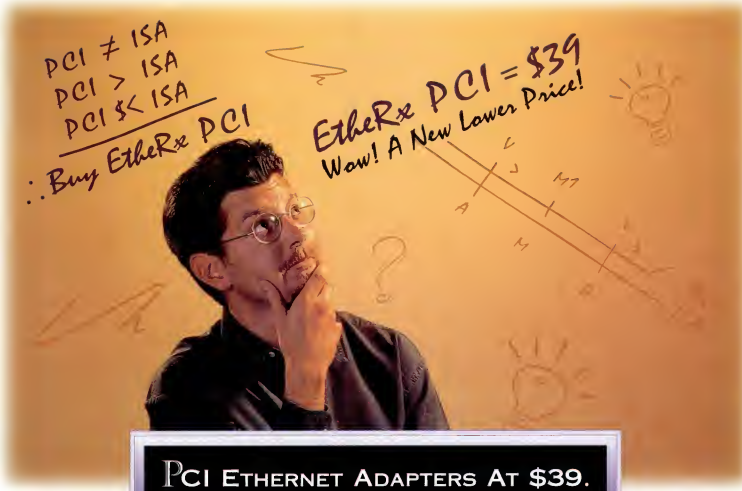




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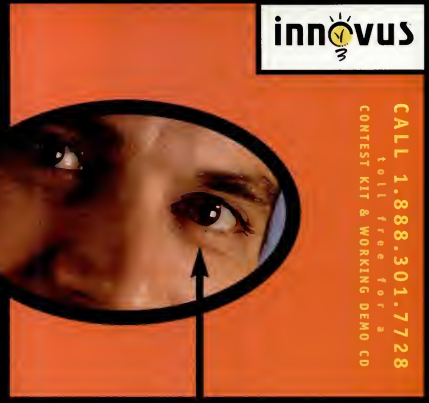
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BUSINESS MULTIMEDIA: It's not an oxymoron. It's a mania. It's what happened when VB and C++ jocks like Bill Gravinsky figured out that business apps don't have to suck. They can be cool, intuitive and (this is still a secret) easy.

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▸ Search tool for Microsoft Exchange

Verity's Search'97 ahead of its time

By Brooks Talley

TODAY'S CORPORATE computer users have access to a wealth of information: The Internet, intranets, and corporate networks are repositories of gigabytes, or terabytes, of useful information. Actually harnessing those resources has proven difficult, however.

BETA

Verity Inc.'s Search'97 Personal for Microsoft Exchange works in conjunction with Microsoft Corp.'s messaging server to help users track down the information they need quickly and easily, regardless of where it's located. I found the beta version, which is due to ship in October, to be easy to install and administer, and its searches were very fast and accurate. Because of the seamless integration with the Exchange client, users who are familiar with Exchange should have no problems using the Search'97 extensions.

Search'97 is available on its own or in a suite that includes Search'97 Information Server and Search'97 Agent Server. There's also a Personal product that runs under Netscape Communications Corp.'s Netscape Navigator 2.0 or later and Microsoft's Internet Explorer 3.0.

I especially liked the product's capability to simultaneously search across public and private resources. With this capability, a user will be able to find information that's contained in private e-mail, published in Exchange's public folders, or located on a predefined set of Web pages.

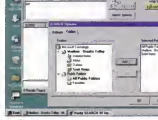
Administrators can prepare sets of resources, called collections, that all users have access to. A collection can include public folders on the Exchange server, Web pages, or any combination of public resources. Users' own collections can also include private e-mail folders.

Search'97's interface integrates cleanly into the Exchange client, adding itself to the toolbar. To start a search, I simply chose whether to search my client's private index or the server's public index. The query form is straightforward, and the query language itself is easy and powerful. I was able to require or exclude words or collections from the search, specify how many documents should be returned, and specify what the minimum relevance should be.

I found the searches to be very quick, and the product's accuracy at returning relevant documents was almost uncanny. The concept-based searching is very sophisticated and most impressive. Relevant documents appeared in the bottom half of the query window, so I didn't have to flip back and forth between the Exchange viewer and the query window to find the right document.

One annoying feature of the product is the Infoseek Guide button prominently displayed on the search form, which simply starts the user's preferred Web server and loads the Infoseek page. Having quick access to an Internet search engine is nice, but it would have been better if I had been able to choose which engine to use.

Another drawback to Search'97 is the manual indexing process for each user's private indexes. The public collections are maintained on the server and automatically updated, but users have to manually update their private indexes. The process is easy and fast, but odds are many users will neglect to perform it regularly and thus will get incomplete search results.



SEARCH'97 *allows users to select which public and private folders to operate on.*

Users may not appreciate having to manually update their private indexes, but they'll certainly appreciate the product's robust customization features. Each user can create predefined collections to be searched; these can include private, public, and Internet resources. Common queries can be stored in a drop-down box for quick retrieval in the future.

Administration on the server side is extremely easy, because Search'97 integrates seamlessly with Windows NT and Exchange security and groups. Administrators can define collections and the groups to which they're available. For instance, it would make sense to index a collection of tax information for the accounting department, but programmers probably wouldn't want that index cluttering up their search options. Any changes to the public index configuration automatically triggers a re-indexing, avoiding a potential hassle.

Search'97 supports replicated Exchange folders, which is important to prevent indexing the same document twice. It can also index data from other Exchange add-ins from Verity and third-party vendors, such as FileNet Corp.'s Ensemble groupware tool. Future versions of Search'97 promise integration with the NT file system and Microsoft's SQL Server — both of which would be very welcome.

In times of emergency, administrators will appreciate the Administration Client's capability to remotely start, stop, and reconfigure the Search'97 server.

Brooks Talley, brooks_talley@infoworld.com, is senior technology analyst in the InfoWorld Test Center.

THE BOTTOM LINE

Search'97 Personal for Microsoft Exchange, beta

Search'97 lets Exchange clients search for information in both public and private resources. This tool opens up local disks, corporate networks, and the Internet for easy, accurate data retrieval.
Pros: Fast, accurate indexing; good query language; easy setup.
Cons: Requires manual indexing on client.
Verity Inc., *Sunnyvale, Calif.; (408) 541-1500; info@verity.com; http://www.verity.com.*
Price: *$149 for all features; free beta version for Exchange customers; $1,995 or more for server version.*
Platforms: *Windows 3.x, Windows 95, Windows NT.*
Ship date: *October.*

▸ Windows-based code editor

SlickEdit a handy visual treat for programmers

By Steve Zimmelman

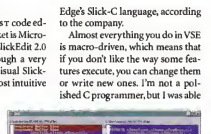
ONE OF THE NEWEST code editors to hit the market is MicroEdge Inc.'s Visual SlickEdit 2.0 for Windows. Though a very powerful editor, Visual SlickEdit (VSE) is not the most intuitive editor I've used.

I have to confess I'm not too big on reading manuals. I like to load the software and jump in. After putting in a few hours playing with VSE, I realized that its learning period was in direct relation to its power.

VSE has an extremely powerful macro language that's very similar to C++ — so much so that it's called SlickC, though it's fortunate that it does not quite have the same bite. SlickC is easier to use and understand than C++ and has better array and variable handling. About 50 percent of VSE was written with MicroEdge's SlickC language, according to the company.

Almost everything you do in VSE is macro-driven, which means that if you don't like the way some features execute, you can change them or write new ones. I'm not a polished C programmer, but I was able to write a macro that inserted comment characters before every line in a selected block of code in about 2.5 hours. That's not bad for my first time out.

If writing SlickC macros isn't your cup of tea, then you might want to look at VSE's alias facility. (An alias is something like a macro without the level of complexity.) With the alias facility, you can create extension-specific (.PRG, .PAS, .C, etc.) keywords that expand into larger blocks of code when typed in the editor. You can even add parameters; this allows you to create aliases that are function-specific. When an alias with parameters is executed, VSE prompts you with a dialog box in which you fill in the value for each parameter before the alias is expanded.



VISUAL SLICKEDIT'S *File Difference can compare two files and display every line that's different, allowing real-time edits in either file.*

Have you ever found multiple source-code files on your computer with the same file name and tried to figure out which one you were really looking for? If so, then you'll find VSE's File Difference option extremely helpful.

Large files don't seem to pose any problems either. I loaded a 5MB (172,187-line) source-code file into VSE in fewer than 5 seconds, and that includes color coding and line counting. With color coding and line counting turned off, it took about 1 second. (I tested this on a 100-MHz 486DX4 with 36MB of RAM; although this isn't a top-of-the-line system, it's a good indication of the application's speed.)

VSE ships with language support for C/C++, Java, HTML, Pascal, Fortran, Basic, and dBase, and MicroEdge will release in November a version with support for Borland International Inc.'s Delphi. Most upgrades and patches can be downloaded from MicroEdge's Web page.

Other handy features include user-definable syntax color coding, drag-and-drop editing, hex editing, timed backups, unlimited line length, multiple clipboard support, a spelling checker, file and project management, and the capability to save files to different platforms.

Steve Zimmelman is a lead developer for Professional Support Inc., in Wilmington, Mass., and a contributor to InfoWorld *and* FoxTalk *magazine. His Internet address is steve.zimmelman@worldnet.att.net.*

THE BOTTOM LINE

Visual SlickEdit 2.0 for Windows

BEST

Visual SlickEdit is a very flexible programming tool that should save programmers numerous keystrokes per year.
Pros: Powerful macro language; alias facility; handy file-compare feature; needs few modifications.
Cons: Challenging macro language for non-C/C++ programmers.
MicroEdge Inc., *Raleigh, N.C.; (919) 831-0600; fax: (919) 831-0101; http://www.slickedit.com.*
Price: *$295*
Platforms: *Windows 3.x, Windows 95, Windows NT; versions are also available for OS/2 and X Windows.*

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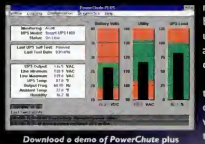
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▸Page layout software

Adobe's PageMaker 6.5 surpasses QuarkXPress in several areas

By Galen Gruman

THE NEWEST PageMaker, from Adobe Systems Inc., continues to push into the professional domain of Quark Inc.'s QuarkXPress. PageMaker 6.5, beta, also stakes out the Internet as a key delivery platform.

PageMaker 6.5 is due to ship for Windows 95, Windows NT, and the Macintosh in the fourth quarter. A year ago, I thought PageMaker 6.0 was a necessary but not awe-inspiring upgrade. (See Product Reviews, Oct. 9, 1995, page 91.) This year, Adobe is on its way to giving QuarkXPress serious competition in its own backyard.

BETA

Although PageMaker 6.0 had rudimentary HTML export capabilities, PageMaker 6.5 really aims at the World Wide Web. For example, the HTML export tool now handles most HTML 3.2 features, including frames. And PageMaker now automatically converts graphics to JPEG and GIF formats when exporting for the Web. You can also create hyperlinks in your document, including those to URLs.

Plus, if you're using a browser, such as Netscape Communications Corp.'s Navigator or Microsoft Corp.'s Internet Explorer, you can jump to a Web page directly from within PageMaker, so you can easily test your links while creating your documents.

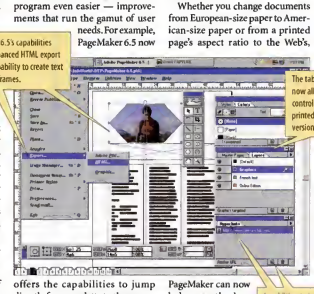
You'll find URL access throughout the new PageMaker. There's a palette for creating and managing Web links, of course, but you can also create a link when importing graphics or text.

PageMaker 6.5 has a feature that will keep old-time publishers smiling: boxes to contain text and graphics. The adoption of boxes, called frames in PageMaker vernacular, to hold elements marks the end of a 10-year resistance to this idea, a hallmark of all other leading page-layout programs through the decade. The frame technique is much more flexible than PageMaker's traditional approach, especially when you are modifying your design; you can create a template with frames already sized and positioned and then bring in the appropriate graphics and text or substitute the content later while retaining the same look. If you like PageMaker's old method of placing elements in a free-hand way, don't panic: PageMaker 6.5 retains that approach also.

Adobe has one-upped QuarkXPress in how it handles frames. Rather than have separate types of boxes for text and for pictures, PageMaker has just one box in which you can place anything.

However, Adobe is missing a key rationale for boxes: multicolumn text. PageMaker 6.5's boxes contain only one column, so you can't use them to easily convert a layout from, say, two to three columns. This is a serious limitation.

PageMaker 6.5 has a host of improvements that will make using the program even easier — improvements that run the gamut of user needs. For example, PageMaker 6.5 now offers the capabilities to jump directly from a palette to the appropriate dialog box for changing settings (such as from the colors palette to the color-editing dialog box). You can now also export a selected graphic to its own file, which is a handy way to translate graphics from one format to another. PageMaker simplifies the creation of elements; to make copies of an object, you can just press Ctrl when dragging them.



Whether you change documents from European-size paper to American-size paper or from a printed page's aspect ratio to the Web's, PageMaker can now help ease the layout work necessary when changing the document's dimensions. PageMaker 6.5 has an option to automatically adjust elements within a layout after you've changed the page size, keeping their relative positions and sizes intact or rescaling them for you. You decide how PageMaker manages the changes through a preferences dialog box.

Another significant interface change is how Plug-ins, formerly called Additions, are managed. No longer confined to a menu list, they can now be created so that they reside in any menu, dialog box, or palette — just as they can with QuarkXPress' XTensions.

Adobe continues its relentless campaign to make all of its programs — such as PageMaker, which was acquired from another company — share similar approaches and interfaces. This means that PageMaker gets the tabbed palettes of Photoshop 3.0 and the capability to have multiple layers on a page, the electronic equivalent of paper overlays. Despite the "Adobefication" of the user interface, PageMaker 6.5 still looks and feels like PageMaker.

Galen Gruman is an executive editor at Macworld *and has covered publishing tools since 1986. His Internet address is gmgruman @aol.com.*

THE BOTTOM LINE

PageMaker 6.5, beta

PageMaker 6.5, beta, neatly embraces the Internet while further forging into QuarkXPress' professional market.

Pros: Capability to embed URLs and convert graphics to Web formats; use of layers and tabbed palettes, which aids design flexibility; can automatically adjust layouts that are resized.

Cons: Single-column text frames; standalone table editor.

Adobe Systems Inc., *Mountain View, Calif.; (800) 423-3623, (415) 961-4400; http://www.adobe.com.*

Price: *$895 ($99 to upgrade).*

Platforms: *Windows 95, Windows NT, Macintosh System 7.x.*

Ship date: *Fourth quarter for all versions.*

▸Multimedia authoring software

Extensive Authorware bundle gets 'net treatment

By Ean Houts

FOR THOSE WHO need to develop computer-based training (CBT) applications, one of the best environments for quickly producing slick multimedia applications is Macromedia Inc.'s Authorware Interactive Studio. Now heading an extensive bundle of Macromedia products, Authorware has entered the 32-bit world and has added Shockwave for Authorware (Macromedia's Internet delivery plug-in for Netscape Communications Corp.'s Navigator 2.0 and later versions) and many transitions.

The addition of Shockwave aids greatly in delivering CBT applications over networks. The expected 32-bit speed improvement was definitely noticeable; I rarely found myself waiting for the application.

Authorware's main window depicts a flowchart view of your project. You can drag icons from the toolbar and drop them onto the desired location to add content, interactivity, and decision points, or to perform functions and calculations on variables. Other tools, including Map, Model, and Framework, allow you, respectively, to condense complex modules into a single icon, create templates of often-used icon structures, and quickly create book-like modules of related pages. There's also a large library of functions and system variables. Although this is not as powerful as Quest Software Inc.'s built-in C compiler, it is considerably easier to use for the nonprogrammer. The capability to embed Macromedia's Director 5 movies further extends Authorware's power.

Any Authorware project can be made accessible over the network via Shockwave, although Authorware file sizes can be a problem for Internet delivery. Most likely due to this, Macromedia stresses intranet delivery for "shocked" Authorware titles, those that take advantage of Shockwave.

Making an Authorware project part of your Web or intranet site is fairly straightforward. First, I "packaged" my project, which made my Authorware project distributable. Next, I downloaded Macromedia's free Afterburner, which compressed the Authorware application and its components to minimize file size. After using Afterburner, I added an HTML link from my Web page to the map file, and my project was ready to go online.

My only complaints about the product, besides the lack of a more powerful programming tool, are minor. For example, there are no right-click menus, and the help is not context sensitive in most areas.

Ean Houts is a software quality assurance engineer with Quintus Corp. His e-mail address is eanwane@earthlink.com.

THE BOTTOM LINE

Authorware Interactive Studio

BEST

COLD

Authorware Interactive Studio is a powerful and reasonably priced package for computer-based training. Strong intranet features highlight this upgrade, but it lacks many Windows 95 conventions.

Pros: Very powerful, intuitive authoring; embedding of Director movies; easy to add Shockwave effects; great bundle pricing.

Cons: Lack of built-in programming language; no context-sensitive help; no GIF or JPG support; no right-click menus.

Macromedia Inc., *San Francisco; (800) 326-2128, (415) 252-2000; fax: (415) 626-0554; sales@macromedia.com; http:// www.macromedia.com.*

Price: *$1,999 for Authorware Interactive Studio, which includes Authorware 3.5, Director 5, Extreme 3D, BackStage Designer Plus, SoundEdit 16 plus Deck II (Macintosh versions) or Sound Forge XP (Windows versions), and xRes SE.*

Platforms: *Windows 3.1x, Windows 95, Windows NT, Power Macintosh.*



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DOWN TO THE WIRE · NICHOLAS PETRELEY

When it comes to judging Microsoft products, the devil is in the details

IN THE BIBLE, in John 8:44, it says of the devil: "When he lies, he speaks his native language." Yes, this column is about Microsoft Corp. But don't worry. I'm not one of those who think Bill Gates is the devil. I simply suspect that if Microsoft ever met up with the devil, it wouldn't need an interpreter.

My most recent example surfaced when Microsoft delivered final Windows NT 4.0 code to *InfoWorld*. In that meeting, I probed Microsoft about the differences between Windows NT Server and Workstation to investigate the Web server issues raised by Netscape Communications Corp., O'Reilly & Associates Inc., and others.

I asked specific questions and got specific answers: There is no way to change any setting to make the Workstation kernel behave like the Server. The reason, said the Microsoft representative, is that the source code for the kernel has embedded statements — #ifdef statements. These cause the compiler to produce different executables depending on whether the target is a server or a workstation. As a result, the two kernels are hard-coded to use different caching algorithms and multitasking priorities, among other things.

That's what the fellow said, in front of a room packed with *InfoWorld* editors and analysts. And it simply isn't true. Microsoft will undoubtedly argue that the difference between what it claimed in the meeting and what is true is simply a matter of semantics. It's not. Ask any programmer.



It's also extraordinarily easy to disprove. Windows NT's own file-compare program will show that Workstation and Server kernels are identical, bit for bit.

O'Reilly & Associates' Andrew Schulman points out that the reason the two kernels behave differently is due to two settings in the Windows NT registry (see http://software.ora.com/news/ms_internet_frame.html). The system makes attempts to prevent you from changing these settings, but it's pretty easy to get past the guards. If you do, you'll break the law, and Windows NT Workstation will perform just like Windows NT Server.

Self-destructive behavior

I find this terribly depressing, but not because it may have implications about what you are paying for and what you get. It bothers me because Microsoft is still engaging in damaging propaganda. And, although I'm not sure Microsoft understands this, the target is itself.

Lies invite harsh criticism, reinforce Microsoft's reputation (deserved or not) as an evil empire, and give Microsoft's enemies ammunition. They also undermine every press release and public statement. Each time Microsoft addresses a controversial product feature, a slew of analysts and hackers will try to disprove its claims because they know that, more often than not, they'll score.

Worst of all, Microsoft's intent for giving misinformation about controversial issues often goes well beyond the limits of reason. To paraphrase an ex-Microsoft employee, Microsoft would have been better off proclaiming from the rooftops that there is no DOS in Windows 95 rather than trying to sustain the deception that there isn't.

The predisposition to lie also draws suspicion in every questionable situation. For example, a few weeks ago, a Digital Equipment Corp. representative demonstrated limited Plug and Play and power-management services for Digital notebooks. According to this fellow, Microsoft, along with Digital and two other vendors, created a set of undocumented hooks to the NT kernel to give OEMs the opportunity to fill these gaps in the OS.

I wondered how many other vendors had access to these hooks, so I posed exactly that question to Microsoft and a few other OEMs. The OEMs I spoke with were either unaware of these undocumented services, or they said the issue was too sensitive to talk about on the record. After stonewalling for nearly two weeks, Microsoft denied that any such hooks exist. (Microsoft declined to speak to *InfoWorld* news reporter Carolyn A. April as well. See "NT laptop vendors to add Plug and Play," Sept. 2, page 6.)

Did Microsoft innocently provide hooks to only a few vendors and afterward realize how stupid it was to limit the selection? Were these intentional favors to a few OEMs? Are there really any hooks at all?

I honestly don't know. But I probably wouldn't even be asking these questions had it not been for an established pattern of deception. After all, how do you give Microsoft the benefit of the doubt when you know that if you throw it into a room with truth, you'd risk a matter/anti-matter explosion?

Worst of all, the tendency to deceive erodes the credibility of almost everything you read about Microsoft. How many of you disregard Microsoft articles for this very reason?

Of course, Microsoft is not the only guilty party. But when you consider that most of the industry runs on Microsoft products, the potential damage these deceptions can cause threatens to be far-reaching.

For now, I'll leave it to others to ponder how damaging this particular lie is to Microsoft, as well as whether or not Microsoft's differentiation between its NT Server and Workstation constitutes anti-competitive behavior.

What bothers me more is that it's a silly and unnecessary lie — like one spoken from a company for whom lies are a native language.



You can send me e-mail at nicholas_petreley@infoworld.com, or visit my forum on InfoWorld Electric at http://www.iuf oworld.com. Honest.

NOTES FROM THE FIELD BY ROBERT X. CRINGELY

Some mistakes are bigger than others, but accepting them is a hard lesson

"GOOD THING SCHOOL'S OPEN, Bobby," Pammy sniped as she read through a mountain of e-mail. "Maybe you can drop by the grade school and brush up your grammar." With that, she handed me a couple-dozen messages critical of my grammar gaffe.

OK, I *accept* that I misused the queen's English in last week's column, although I *expect* the mistake's the exception and not the rule. Still, it hurts to be so roundly criticized by one's own people.

It could be worse, I suppose, from the stories I heard this week. Take, for example, the mouthful one consultant got from an NEC tech rep when four out of six of his new NEC systems went belly up in the first 30 days. The technician told him: "No one around here would ever own an NEC desktop." Turns out NEC contracts out its tech support to GE Capital. Apparently there was no loyalty oath in the contract, though.

You'd expect someone inside a company to be a little less candid, but not so for a Microsoft engineer who gave an Office 97 briefing this week at the Air Force Information Technology Conference, in Montgomery, Ala.

"If it doesn't hang up at least once, it isn't Microsoft Windows," the engineer said, without so much as a grin. He followed that with an inside joke regarding the memory requirements of Microsoft products.

"In my department," the engineer quipped, "we call PowerPoint, 'PowerPig.'"

Write the jovial engineer off as an exception, but a mole deep inside Microsoft wasn't kidding when he said the latest release of the Windows 95 Plus Pack is so buggy, he's advising people not to purchase or install the package until there's a new release. The most recent Plus Pack will hang system performance and the only fix is a complete reinstall of Windows 95.

Someone else's mistakes

I wasn't amused by the nonchalance of Gateway's technical support when pointing out a BIOS flaw in some enhanced IDE-compatible Gateway boxes. Apparently, the BIOS limits the maximum number of cylinders to 4,096, so the machines can't handle drives larger than 2.1GB. What does tech support say? Don't hold your breath waiting for a fix.



And don't expect anyone at Microsoft to volunteer to write the NT 3.51 PostScript drivers for HP's high-end LaserJet 5Slmx. That's HP's job, Microsoft will tell you. Funny, though — HP says Microsoft insists on writing the driver itself, so HP isn't writing one, either. The printer does support NT 4.0, and apparently also HP midrange systems sometime within the next 18 months. A sales rep for HP said the company will support NT on its "minicomputer boxes."

The one group of insiders I couldn't crack this week might have the juiciest fruit of all. Rumors are circling around both Apple and Be that the former may be buying up the latter. Just another case of a big company gobbling up a little company — this time to bring Jean-Louis Gassee back into the fold? That's the stuff of soap operas. The juicy part of the speculation is that Apple will bag Copland once and for all and adopt the Be operating system — and the Be-Box — as its next-generation Macintosh platform and hardware.

PAMMY PROOFREAD this column with a magnifying glass, so if you spot a problem, send your e-mail somewhere else this week. In the meantime, the two of us are playing school. She's the teacher, I'm the student, and she's keeping me after class. Had my lessons been this much fun as a kid, I'd have never made that mistake.

Teach me a lesson. Call with your tips at (415) 312-0555; fax: (415) 286-2775; or send me e-mail at cringe@infoworld.com.